HELP FOR YOU WHO STUTTER

Edna Hill Young

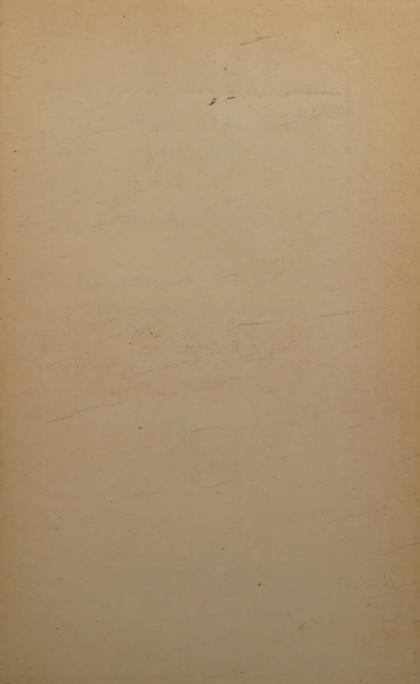


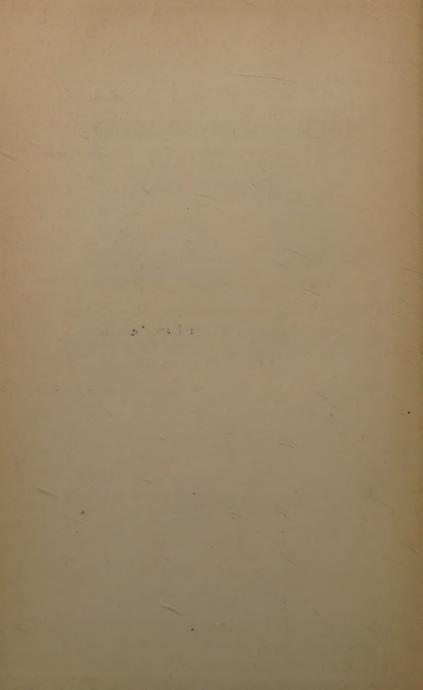


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HELP FOR YOU WHO STUTTER

by

EDNA HILL YOUNG

of

The Hill-Young School of Speech

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MY FATHER WHO TAUGHT HIS CHILDREN EARLY TO LOOK FOR THE CAUSES OF THINGS THAT HAPPEN

OTHER BOOKS BY SAME AUTHOR

"Overcoming Cleft Palate Speech"
"Perfect Speech at the Age of Three"

PREFACE

More help is needed by many of you who stutter. That is my reason for writing this book. Some of you are far away from all help. I hope that to such at least this little book may bring a message that is worth while. The term "stutter" today usually includes the meaning formerly conveyed by the two words "stutter" and "stammer." You may consider the term used thus inclu-

sively in these chapters.

The consensus of opinion today relegates stuttering to the realm of nervous or of emotional disorders. And surely the one who stutters usually becomes both nervous and upset emotionally. Since there is already much help available along other lines of helpfulness, this book will seek to show primarily the relationship between the use of the speech mechanism as used normally, and its use in stuttering, with helpful methods for re-gaining control of the muscles nor-

mally used in speech.

In order that you may understand why I have dealt with the subject of speech as I have, it will be necessary for me to state that what I write is based upon the evidence of personal experience, and experimentation, followed by many years of work with children and adults who were afflicted with a speech defect. My difficulty came from malocclusion. Certain sounds were hard for me to get in childhood. I found a way to make them, but it was a difficult way. I came to the conclusion when I was in high school that something was wrong in the way I was talking, for my mouth was tired after a day's necessary speech, although I was strong in every other way physically. My speech was not defective in sound after my childhood days, and my trouble was not especially noticeable. I believe, to the casual observer. At the same time, to avoid difficulty because of a misshapen tooth, my jaw as well as my tongue had formed certain irregular habits, which bothered me exceedingly in talking.

I began to study the mouth movements of people who talked well in an effort to find the correct way. Little by little through several years of observation and study, I learned the normal movements of speech and practiced them by myself. The bothersome tooth was extracted. I then attempted to use the correct movements in talking all of the time, but herein lay an unexpected difficulty. I was trying to make muscles move in a new way, and to function fast enough for speech. Many times as I came to a word in which I must make one of these changed positions or movements, I was almost stopped in talking. These new muscular acquirements were always conflicting with the old. But having the correct movements clearly in mind, I kept on, and the time came when I talked comfortably, and without conscious effort.

I learned much from this experience. I learned what it means in the muscles concerned to change from one set of movements and to use others instead. I felt the strength and grip of first habits in a definite way, and found that they do not relinquish their hold because new ones are substituted. I felt the conflict between the two sets of habits. I learned what happens emotionally when one is

constantly hindered by muscles which are not working automatically in speech. I learned, in fact, that the necessity for speech-correction, with its accompanying muscular disturbances and consequent upset emotional conditions, should by all means be prevented. The movements, in finished speech are necessarily fast, and should be gained correctly when first gained. Then correction would not be necessary.

As I worked on the speech of other people, I found that defective speech in every case is accompanied by muscular movements which deviate from the normal in some form or other. To secure the correct speech, the normal movements must be substituted. In every case, as the normal movements or positions are obtained, if accompanied by correct breathing, the desired sound or sequence of sounds for a word or group of words is the result. As I worked with stutterers, it became very apparent to me in the light of my own experience and experimentation that many of them were suffering from muscular conflicts. which were the results of previous changes in muscular habits. Undoubtedly many of these conflicts came as the results of early changes from "baby-talk" to correct speech in young child-hood. I feel very certain, because of my own experience in which I felt the tendency to stutter as I approached the changes in speech, that much stuttering could be prevented by guiding the basic movements of speech in infancy in a way which would prevent the need of change. Correct early training of a few essentials can prevent much trouble such as yours.

Because we have worked with many young people such as you, struggling over your difficulties, and because we feel that through this personal experience we do understand somewhat the nature of your struggle, we want to pass on to you whatever help we have to offer. We are sending forth this book in the earnest hope that it may help to keep up your courage, and to guide you on the way of gain.

EDNA HILL YOUNG.

Hill-Young School, Sept. 1, 1928.

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CHAPTER I

THE RIGHT ATTITUDE TO BRING SUCCESS

In writing this book, I am thinking especially of young people between fourteen and twenty-five years of age, who are seeking a way to overcome stuttering. If you are younger, perhaps some older person can help you to read it, study out the suggestions, and apply them to yourself. The younger you can begin to get help, the better. If you are older than twenty-five, especially if you are not yet thirty, you have some years in which you may grow better in speech. One woman of forty told me that she felt more confidence in talking after she had worked for six months in line with the suggestions in this book. She at least knew what to do to help herself. By the aid of her conscious thinking she was in a position to grow towards control.

To begin with, you wonder what you are to do to improve your speech, how to

do it, and how long it will take to attain that end. To get the right perspective of the process ahead of you, to attain the right attitude towards that process as well as an understanding of it, are the necessary beginning steps. It works best to get at the truth of the matter, to face facts, for you will then be in a position

to work more intelligently.

I wish very much that I could tell you today that you can be better in a month, or in a few months. But as I have watched and studied this problem, the matter of time is a very important element. Too many have hoped for quick "cures," have been buoyed up by hopes of early accomplishment, have talked better for a few weeks, or months, and then have had the difficulty reappear through strain, illness, or a return to former environments in which they had previously stuttered. This kind of an experience is unfortunate. You do not as readily hope again. It is upsetting to expect any sort of good, and then find it does not come. The better way is to be told the basic facts of speech, as related to the laws by which our minds, emotions, and bodies are governed. Habit is a very important factor in acquiring incorrect speech, in the same way as it permits the acquiring of the controlled

movements of correct speech.

Your speech today is made up of a very complex set of muscular habits, acting at variance with normal muscular habits. But whatever these habits are. they had their beginnings when you were a year and a half, or two, or three years of age, as I will show you in a later chapter. They go back to the beginnings of your life habits. You have repeated your mistakes so many times that your tendency to make them is very deeply woven into you. The "feelings" which are connected up with these wrong muscular habits are not comfortable ones. It would look as if comfortable feeling accompanies correct action of muscles, action as it was intended to be. Discomfort and tiring accompany incorrect action of muscles in which there are conflicting tendencies to act. Dorsey says, "The kinesthetic sense only gets into consciousness when something goes wrong."* feelings have formed the habit of reappearing under certain conditions, making the problem harder for you. Many of you have felt this discomfort in your

George A. Dorsey in "Why We Behave Like Human Beings."

muscles for so long that the cumulative feeling presses in on consciousness and makes you too conscious of your speech production. It has not left your mind free to give itself to thought as it otherwise could have done.

Then let us face the facts. Does it seem reasonable to you that in a short time you could overcome these years of repetition of physical habits, of emotional habits, and be the same as if you had grown into correct habits during your life! I am sure you can see that it is not a reasonable thing to expect. Long enough time, filled with constant effort toward correct repetition, is a necessary factor to your gain in speech. Your task is to substitute correct habits for these incorrect ones. I have found, in working with stutterers, according to this plan that three years is not too much time in which to change so large a number of habits. As one tries to cultivate a correction of muscular movements, the body rebels against it. Our experience with speech problems has led us to believe that with the average person conscious effort cannot supersede former habits to any marked extent for the first nine months. In fact, after working for several months. our pupils have usually gone through periods when speech was worse than it was previously. "How discouraging," you may say. No! If you understand what it means to break a habit, you will not be discouraged. If you are not trying to change your speech habits, they will continue to be as they have been in the past. Begin to change them, and they will give increased trouble, until the new habits gain strength through

repetition.

During the first nine months of struggle towards growth, you will be rewarded by occasional better days, which will be a forecast to you of what is coming. As you persist in spite of not seeing results, the mental picture of your "standard pattern" will ever be getting clearer. The muscles which have been moving in an incorrect way will begin to move the desired way part of the time. Then there will be a "see-sawing" from the correct working of the mental picture to old habits, for as soon as automatic action occurs, freed from your conscious direction of your speech, you will speak as you have always spoken. After the first year, correct speech comes more frequently. More sentences a day will be correctly spoken.

This is a table showing the way growth will come.

Percent of time speech	Percent of time speech
is perfect	is still imperfect
70%	30%
71%	29%
72%	28%
75%	25%
76%	24%
80%	20%
85%	15%
90%	10%
95%	5%

In the above table, the proportion of time a certain stutterer is talking perfectly is 70%. Effort in the right direction brings his percent to 85, by the end of two years, let us say. That is very much better than he was when he began his effort. But during the 15% of the time when he is talking imperfectly, the disorder seems just as it did formerly, the old undesirable movements are repeated, the old feelings of discomfort, excitement, fear, come up just as they came up in earlier years, with a dropping off of the more exaggerated forms of movements. What I want to impress upon your

minds is this—that in your distress over the 15% imperfect speech, you must not be discouraged, but must keep in mind that you are talking perfectly 85% of the time, and know that more work and more time, with thought in the right direction, will bring a bigger gain, constantly lessening the number of percent in the imperfect speech column. Is not this the way gain comes in any attempt in which muscles are seeking to attain a standard of skill? Skill at the piano comes in this way. So does skill in typewriting. No gain in which finer and finer adjustments of muscular movements is required comes in any other way.

Understanding your speech mechanism tends to lessen the fear which came, and grew into a habit with you, in the years in which you did not understand your trouble, or what to do with it. In the same way, you who drive a car feel less fear and anxiety when starting off on a trip if you understand its mechanism, and have the necessary knowledge and tools to repair it in case of a breakdown. Understanding your condition, and seeing clearly the way of gain will bring about the right foundation upon which to build new emotional tones. The mind

in this retraining must guide the muscular mechanism and also the emotional

processes.

Knowing your mechanism and its "workings," with several years of daily thinking and practice, not only brings the habit of better muscular control, but it establishes within you a confidence which will save you from a "relapse" in the future, should you again feel some difficulty. You will know what to do. Control becomes the constant practice of your life. By this course of procedure, every year brings strength in the direction of normal tendencies and movements, and puts you farther and farther from the habits of the past.

I hope this little talk with you is getting you "set" in the patient, persistent attitude of mind and feeling, which is necessary to overcome a serious speech disorder. Establish your goal—a mechanism working like your neighbor's—all the movements of normal speech becoming yours a little 'at a time by patient effort. Determine to persist, with the normal pattern in mind which I shall give you, until you find your way out of the difficulty. Whenever you make mistakes, you have deviated from the normal

pattern of movements required for correct speech. Learning to know these movements, practicing them, teaching them again to the parts concerned, must bring constant gain, after the first mixed-up months are over, and the new patterns begin to gain a hold in habit.

CHAPTER II

CONTROL OF THE AIR IN SPEECH

Your automobile engine has developed a "knock" or strange sound. It tells you that something is wrong. You take it to the mechanic who specializes in your make of car. Perhaps he drives around the block with you, listening intently, and as he listens he visualizes the inner working of the engine. His mental picture of every movement of the individual parts of the machine is so clear that he can tell you exactly where the seat of the trouble lies and what must be done to correct it.

So in thinking of your speech mechanism, the clearer mental picture you can form of its "workings" the better, in order to correct the difficulty and to enable your body to act in accordance with the normal. It is necessary to eliminate from consciousness all thought of the parts of the mechanism which do not have a direct bearing on the work you

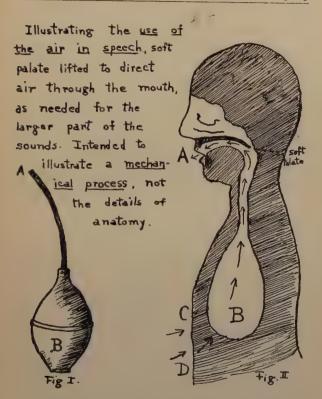


Fig. I—A rubber bulb. Press at B.—air moves out at A. Relax hold at B. Bulb assumes natural shape. Air rushes downward into B.

Fig. II—As the body moves inward at CD, B receives necessary pressure to send air out at A. This pressure inward is continued during a spoken sentence. Body enlarges at CD around waist, air rushes into lungs at B in a period independent of spoken sentences.

are to do. To become conscious of the correct movements of muscles and to picture clearly the work the air does in speech is very essential.

Let us think how the air is controlled

first. I will illustrate by diagrams.

In figure I, you see a picture of a rubber bulb with tube attached, such as is used for many common purposes. I took it from my atomizer, and I use it often to illustrate the way in which the muscles control the air in speech. You are familiar with the "workings" of the bulb. Your hand presses the rounded part, and if it is full of water, a stream moves steadily outward at the opening of the tube as long as the pressure of the hand is applied steadily inward. If the fingers stop pressing, the bulb assumes its rounded shape and the water is drawn back to a lower level. Consider how air would work instead of water. The dentist wishes, under some conditions, to dry a tooth prepared for filling. He warms the air in a little rubber bulb, and "squirts" it into your tooth by the pressure of his fingers and thumb on the bulb. When he lets go of the bulb, the rubber returns again to its previous shape and air rushes into the bulb and refills it. making the air-pressure outside and inside of the bulb the same.

Now the body in taking in its air does exactly the same thing as the rubber bulb. In imagination let the bulb take the place of the lungs. For speech purposes do not try to picture the lungs in detail. Control is gained by simply picturing a container of air, working like the bulb with muscles around it to work it. The muscles which control the front "wall" of your body, causing the movement inward in breathing, take the place of your hand pressing the bulb. These muscles bring the "wall" inward, pressing out the air, and with it sound. When they relax, other sets of muscles combine to push outward the wall of the body, making more room inside of the lungs to be filled with air. To control the air for speech, it is not necessary to picture more of the body inside than I am giving you, or add to the complexity in thinking by seeing it in detail.

The thing we need is a picture of the "works" under our control. It is easy to connect up what may be seen, with what is felt in the bodily movements. The moving in and out of the body can be seen. All that is necessary to secure the

desired results is to have the inward moving of the body in breathing connected with the outward moving air, and the out-going sounds which produce a sentence. This makes a simple clear picture, visualized easily for use in correction. Then to train this in-going movement for evenness, firmness, and strength is what is needed. The louder to be the spoken words, the firmer must be the in-

coming movement.

Picture a child asleep in his crib. The covers move up and down. As the covers move up, the air moves downward into the child's lungs. The body is enlarging at the waist, pushing out. When the covers move down, the muscles at the waist are sending air out through the mouth. Say "ha" quickly, sharply. The muscles which you will feel inside, coming in hard, will tell you which ones send out the talk or singing. However, in speech they learn to come in more slowly, evenly, and steadily than when you say a sharp "ha."

Now the relation to speech of the two big movements which control the air is this. Speech may begin just as soon as the body wall begins its in-going movement, brought about by the contracting muscles. This pressure begins to squeeze air upward ready for the mouth in speech, for it is necessary in talking to have air moved upward into your mouth to be used as it comes during the speaking of your sentence or part of a long sentence. Now you know that in a general way, don't you? But your picture is too vague and indefinite to be of any real help to you. If we can learn to understand exactly what a normal speech mechanism does, we are ready to know what to say to ours—to say confidently into our body, until it does our bidding.

Some of you have strained yourselves hard to get your speech out. Correct speech is such a simple thing in comparison. You must learn to "let down." from making a hard blind effort, to making a rightly directed effort in the right muscles. You must learn to sit back, relax. let the waist-muscles work, so that the moving air will carry your words over to your neighbor. You listen to the radio. The sounds come moving through the air from New York, Chicago, Nashville, where not? They once get sent, then on they go! Each radio station has a power plant, used in broadcasting its messages. This "wall" below the thorax is the

"sender" as it pushes inward sending up air. Sound begins. It is pushed outward into the larger air. The definite work of the mouth, and its relation to the "pusher" below, will be given in later chapters. But-let this sink deeply into your being. You must let go this terrific effort to talk. Sit quietly and picture the right place in which to center your effort in talking—your "pusher"—made on purpose, the seat of this effort, pushing against the air in your lungs or "bulb," causing air to move upward and outward, carrying a line of talk with it. Each atom of air, wherever located in the air column, moves ever outward during a sentence. The steady current pushed from below carries your speech, without strained effort on your part, out to your neighbor, just as the radio message moves on from Nashville. No wires! Just riding the air!

CHAPTER III

1 ..

SOME SPECIFIC MOUTH PATTERNS

The purpose of this chapter is that you may understand definitely what is the normal work of the mouth in talking. The person whose speech is defective is always working his speech machine wrong somewhere. I am trying to make clear to you in this book the normal standard mechanism with its correct way of being worked. This is your "norm," your "pattern" to go by. Then as you train yourself again to work as the "pattern" does, you will ever grow toward perfect speech. It is necessary for you to study the normal speech machine carefully, and patiently, and know what normal running of your machine is, just as you study the way of running your car. You know very well that your car will not work if you fail to turn on the ignition. It will not run well if you fail to release the brakes. Somehow it will not go if your gas tank is empty. It

would be foolish to try to run under such conditions. We do things just as foolish with our speech machine, through habits wrongly acquired, through lack of knowledge of what it ought to be doing, or how to correct the trouble if it is not functioning as it should. We strain and strain to make our machine work when the "brakes" are on, and wonder what is the matter. So be patient with the details here given, and study your machine.

If you will look in the "Scientific American' for September, 1927, you will find that a London physicist, Sir Richard Paget, has invented a device which reproduces human speech. This inventor makes his machine say, "Hullo, London, are you there?" The article referred to says, "Phonation—the humming sound produced by the vocal chords —is the language of our emotions. It is found in the lower animals, and was doubtless used by the primitive ancestors of man to express their emotional states -such as anger, challenge, fear, warning, pleasure, pain, love-long before speech itself was invented. Articulation, on the other hand, is the language of the mind. It is the method by which we convey our thoughts, as distinct from our emotional states.

"Articulation can be used by itself, that is, without phonation, as when we blow air from our lungs through the cavities of our throat, mouth and nose without allowing our vocal chords to come together sufficiently to set up vibration. In this way the movements of articulation produce whispered speech. In the English language we can make all the various speech sounds—vowels, diphthongs, and consonants—without the aid of the vocal chords.

"When, instead of simply blowing air through the vocal cavities, we blow pulsating or vibrating air (due to vocal-chord action) and then make movements of articulation, we get the phenomenon

of voiced speech."

It is easy for us to understand that any machine such as a typewriter, an adding-machine, etc., has its own definite way of working, but it has not been so easy to recognize that there is a machine within ourselves which must work in just as definite a way in order to produce correct speech. Hold in your mind this picture of your own speech machinery. It consists of an air-container like

the bulb, our lungs, muscles which bring pressure against the lungs, as our thumb and finger push against the rubber bulb. This part of the machine is described in the last chapter. It is used to send a stream of air steadily upward, between the vocal chords, then on through an air passage out through the mouth. While the air passes through the mouth, the mouth moves from one shape to another, each changing position making a change of sound. The work of the mouth then is to change its shapes, easily, smoothly, in rapid succession, according to the changes required by the sounds of the words of a given sentence. I am constrained to quote Sir Richard Paget again, "The effect of the movements of articulation is therefore simply to vary the tuning of the cavities through which the air stream passes." It is the same principle upon which steam whistles are made. The "siren" is produced by forcing air through a series of air chambers of correct shape and size to produce its sequence of varying sounds. In simpler words, the mouth by taking on one shape, while the air passes through it, makes possible the production of a definite sound. The current keeps on mov-

ing up from below, while another mouth-shape makes the next sound possible. Here then in a nut-shell is our machine—consisting of a blower, the "bellows," an air-passage out from the "bellows," vocal chords along the passage, making air vibrate, (but which do not affect our own control of the machine in any way), a mouth which makes definite forms, one for each sound in the language. When we learn to see the work of the mouth as a definite changing of shapes, and realize that in saying a given word there are a certain number of definite movements and positions through which every mouth speaking the same language must pass, we can see that here is something tangible upon which we may build safely in solving the problems of speech development and correction. If the mouth did not move so fast from one shape to another, these basic facts would be better understood by the intelligent public. Many of you cannot 'read lips' as the hard of hearing do, nevertheless you realize that by patient study and practice it is a thing that can be done. Most of you cannot tell where the position making one sound ends and another begins. But one can, who has spent the necessary time and effort upon this problem, just as the deaf learn by study and observation to understand spoken words by watching the movements of the mouth. The reading of the lips is done by a recognition of the observable movements and positions through which the mouth passes. The study put upon the definite need of the deaf has resulted in their getting a step ahead of those working for the other needy speech groups. The same basic study and observation is necessary. The laws governing the muscles of the body work with all people alike.

Whether hearing, or non-hearing, whether defective in speech, or not, the right mouth position with the air blown through from the lungs causes the correct production of a given sound. Other conditions in the various groups may differ. The method of approach may vary because of group conditions or individual conditions, but the basic facts remain unalterable that there is a standard speech mechanism which must be worked in a definite, exact way wherever speech is normal. This is basic. In the last chapter we visualized the part of the speech mechanism which controls the air.

The movements connected with this part of the mechanism are the largest, the simplest to teach, and also to learn. During this outward moving of the air, we may begin making sound. We may make a long, continuous sound, or we may make a sequence of short sounds by moving our mouths into different shapes, letting first one sound move out, then another, then another, until the air inside is nearly used up, a little "residual" air remaining. This is the way a sentence comes out. It takes a certain definite "moving" of muscles of the mouth to make one sound. Then the mouth moves in the most direct way possible to shape itself for the next sound. This makes a movement between positions which the deaf learn to recognize and note in reading the lips. The amount of moving, the exact work of the mouth required to make one sound, let us call a "unitmouth pattern." The work of the mouth is to pass from one "unit-pattern" to another.

I hope you can see better now the whole picture of the speech mechanism. You need to get a view of the united whole, for then as you study in detail the movements of the mouth, you will

see better how they are simultaneously connected up with the larger movements below. I think it simplifies work on our speech to get to seeing our speech mechanism as a thing by itself—to get rid of thought of all next-door neighbors. Here it is again. It consists of an "air-container," like the bulb, (lungs), the neck of the bulb being replaced by the bronchial tubes, trachea, larynx, throat, and mouth. Since there is a passage then for air from the lungs out, you may think of it as a continuous tube like the neck of the bulb. It does not matter about the variations in shape from the bulb. The "working" is the same.

In thinking of the various movements of the mouth, there are certain ones which occur in connection with more than one sound. There are other movements and shapes which are used in the production of one sound only. I shall call the first, "general" movements, and the second "specific movements," or positions, to distinguish them from each other. The possible deviations from these normal movements will be given in a later chapter. The normal standard is given here. The movement of the lower jaw up and down is the largest

"general movement." It should be made for speech just as in chewing, bringing the molars together, thus letting the front teeth adjust themselves as they do naturally in closing. The movement is then a straight up-and-down movement. The movement of the end of the tongue up-and-down, is another "general" movement, and should be done from the middle point of the gums, behind the upper front teeth to a point directly below, making the tongue lift symmetrically in the middle of the mouth. The movement of the muscles of the back of the tongue lifting up and back and then down again is another "general" movement. The movement of the lips toward the middle and back again is another "general" movement.

In thinking of the movements of the mouth and in studying various shapes through which it passes, it simplifies the study to classify those movements together, which occur in the same direction, or in the same set of muscles. Let us begin with the sounds made by lifting the end of the tongue to a position behind the upper front teeth. There are four of them. Words beginning with the sounds of the letters "t." "d." "n," "l," start

their movements by lifting the end of the tongue to a position behind the upper front teeth, as in Fig. 4. The lips draw back slightly toward the corners, to get out of the way, so as to let these sounds come out well. The teeth show; the lips

are apart.

The point in the middle of the upper gums behind the upper teeth shows the direction toward which the tongue moves to make these sounds. The end of the tongue should touch the point named before the sound begins. The mouth muscles of the stutterer have become confused. The cause of this will be shown later, when you know what the normal mouth movements are. It helps to keep directing them in line with the way they are supposed to go. In stuttering the end of the tongue trying to make any one of these four sounds may move around in the mouth, trying blindly to find the right place, struggling to find it. Keep directing it in thought and in practice straight up as you say words starting with any one of the four sounds mentioned.

The sound of "n" is made by holding the mouth in the shape described above, with the end of the tongue touching the gums firmly behind the upper front teeth. The air, pushing, vibrating, sends the sound through the nose and adjacent parts, which act as a sounding board. This accounts for the nasal quality of the sound. This sound is made largely through resonance outside of the mouth, but the mouth movements are necessary to secure a certain definite shape in the mouth, in order to make the production of the sound possible.

The sound of "l" is made by shaping the tongue like the bowl of a spoon, letting the curved end touch behind the upper teeth. The hollow of the spoon is toward the throat. The air current pushes through in this shape to start

''lamb.''

The sound of "d" is made by pushing the end of the tongue firmly against the wall back of the upper teeth. It is the muscular movement which the stutterer must consider. Go directly toward this point. Feel the muscles below co-ordinating, pushing firmly.

The end of the tongue assumes a different shape with each of these four sounds, and does a different thing. But the stutterer usually does not fail to get these correct differences finally. He fails

more often in his location of the place and the direction of movement. In words beginning with "t," not followed by "h." the end of the tongue fits against the gums behind the upper teeth, the whole tongue fits closely to barricade the air momentarily. Then the end of it comes down quickly, permitting the air to be released, forcefully pushed from below. The stutterer sometimes holds the tongue too long to the position behind the upper teeth for "t," and similarly with the other sounds. The end of the tongue should move directly up to position, check the air, and then come down again quickly in making the "t" sound. Practice this, looking in a glass. This work has nothing to do with phonics as taught in schools. The purpose of this effort is to teach again to a mouth which has become confused, the definite movements necessary to produce fast, automatic speech. If your tongue has formed the habit of holding its position too long on one of these sounds, practice quick direct movements. Muscles can learn, and unlearn by constant directing, whatever past habits have been formed if you can see the picture clearly of what ought to be done. The tongue has formed its habit of

holding too long, because it has not had the air available for use ready for the quick downward movement which releases air for "t." Look back to chapter two where the movements in control of the air are described. If the air is being checked below the mouth, or not being sent through, the mouth is at a standstill, and will hold to the position in which it happens to be placed when the air-current stops. Regaining control of the machinery below, and thereby keeping a constant current of air passing upward through the mouth during speech, makes it possible to continue a flow of movements in the mouth. Seeing clearly the relationship between the steady aircurrent and the readiness of mouthmovements, helps in re-training. Practice with this picture in mind. (See chapters seven and eight.)

The sounds made with the back muscles of the tongue pushing upward are the sounds of hard "c," "k," "q," (all of which stand for the same sound) hard "g," and "ng" at the end of words like sing," also the first movement for "x" at the end of words. This sound of "x" is the same as for "ks." "Q" is always followed by "u," so that "qu" makes

the same sound as "kw." The three separate sounds needing this movement then are the sounds of hard "c," hard "g," "ng," although several other letters may represent the sound of hard "c" in writing or printing. The movement at the back of the tongue pushes it up, shutting the mouth cavity from the throat temporarily, then the muscles pull the back tongue down quickly, and air shoots through again, pushed from below.

The mouth which has become confused in its movements is not moving directly and immediately in the parts where movement should begin. Therefore the words beginning with the sounds requiring a back-tongue movement should be directed constantly to start in the right place before floundering around awhile in the beginning. Here again the mouth-movement, and the incoming body movement, which forces air upward through the throat must coordinate. If the air-current is not pushing upward, ready to move out forcefully as the back-tongue muscles come down, the back of the tongue may hold to its position too long, struggling for the necessary air-current in order to continue speech. Train your body muscles which control the air, to come in steadily, evenly, during the speaking of a sentence. Train your neck-muscles not to respond in speech, not to tighten in a strained way. The air-current must move on, on, in speech, until a sentence or a part of a larger sentence is completed.

The difference between your speech machine and a machine made of iron. steel, wood, etc., is that the latter may be taken to the repair-man, the deviation from the correct way of running discovered and rectified, and the metal or wooden machine goes on running. Your speech machine may be examined and you may be found to have several deviations from the normal machine. The "repair-man" may show the correct "working." But herein is the big trouble with making over our machinery. Habit is a factor to be reckoned with in dealing with our machine, which does not enter into the repairing of the other. Past habit will keep causing the speech machine to vary from the normal working. Just as constantly as you feel the deviation, be your own "repair-man," and work toward the attainment of the normal way of working a "speech-machine." I know of no other place in which the effect of habit is seen so persistently, so tenaciously, as it is in the muscles of the speech mechanism. This is because there are so many movements, movements of large muscles, movements of small muscles. The machine should be automatic, or it is most difficult to work. It is too complicated a machine to make over or to repair well, especially when it is under the control of the world's greatest tyrant, the master called HABIT.

CHAPTER IV

MOUTH MOVEMENTS CONTINUED

In previous chapters, we found that the muscles moving the air outward for speech must work in a definite way to keep it moving in a steady stream. little part of the stream is used in the production of one sound. On the air pushes. The next part of the stream coming on is used to make the next sound, and so on to the end of our sentence, with the amount of air we have at our command. It reminds me of my visit to a candy factory, in which the striped candy was carried in a long conveyor, in pieces of forty or fifty feet in length. Little pushers moved these long sticks down the room until they came to the cutter. where the candy was cut into the pieces with which we are familiar. The long sticks never stopped moving. On, on they came, just fast enough to be chopped off when they came to the chopper.

So our air is moved along, pushed from below. A certain amount is used in the production of the first sound, another amount is used for the next sound. as the stream of air is pressed through the mouth. What is done with the quota of the air-current used for each sound depends on the nature of the sound to be produced. But with all, the steady onward moving of the current is necessary, constantly furnishing the mouth with a current of air, forcefully moved from below. The force of the moving air is used to help make sounds as well as to send them out. Remember that the speaking of each sentence means that your mouth must go through a line of definite movements. Look in the glass and move your mouth as if saying a certain sentence. You used to play a game that way perhaps. It was called "Guess What I Am Saying." Then you moved your mouth as if saying something, but you did not even whisper. And the other children tried to guess. As you watch your own mouth pass through the movements required to produce a certain sentence, you will see best what the work of the mouth is. Start air moving, without sound, and you have whispered speech, but you use the same movements. Start sound outward, and you have audible speech, with the same movements.

We have now talked of two different "locations" in the tongue for moving muscles as sounds are produced. One set of movements is in the tongue, toward a point located back of the upper teeth. The other is toward a point located in the middle of the mouth at the back. These muscles push the back of the tongue back and up, with the tip pointing downward behind the lower front teeth, if done correctly.

Now let us consider the lips with their muscles, which form another "location" for moving. This new "location" for movements starts the moving somewhere in the lips or muscles surrounding the outside of the mouth. Words beginning with sounds of "m," "b," "f," "v," "w," "o," "p," "r," start the movements in the lips. Whenever these sounds are to occur in sentences, the lips start the movement. The importance to the stutterer of where to begin to move is very great. When you know what to do, you may begin to train yourself to make a sound directly where it should be made, to bring definiteness into the movements.

Some stutterers begin with lips in a false effort to make words, which should begin with end-tongue movements. Why that is, you will understand better when you read Chapter VII. It is enough now to get the right idea about where in the mouth to begin your mouth movements,

if they are to be begun correctly.

The beginnings of words usually cause the trouble in stuttering. Therefore. I ask you to consider first sounds as they are made at the beginnings of words, although the same movements and positions are necessary wherever these sounds occur in a sentence. You are about to begin a word commencing with an "m." The lower jaw moves upward, permitting the smaller muscles below the lower lip to push it up against the upper lip, letting the lips come together in a straight line. The red part of each lip shows. The mouth is comfortable, free from effort or strain. In this shape the "pusher" below, ever keeping this push of air ready for use in normal speech, exerts its force and the "m" sound is produced. Sound is sent through the face again, somewhat as with the "n." only that the mouth is in a closed shape for "m." One common mistake is to

work the lips. This came and grew to be a habit, remember, when you did not know that your "bellows" must keep a stream of air ever ready to be used in speech. Your mouth made the right shape, but no push of air was forthcoming to send the sound through your sounding board. You had choked off your air in making one of these "mechanical defects." Your mouth felt the word failing to come. Then you struggled in the location of the "m" movement, the lips, to get the sound. Now, if you have ever done this, remember that your lips are to make no effort after you have moved your lower lip against the upper one and the two are adjusted. work is done. The "pusher" does the rest. Think this carefully. Try to see clearly where the mistake came from, then you will know better how to work to remedy it. You are ready to say a word beginning with "b." The first part is just the same as for "m." After the lips have touched, the tiny muscles of the lips move somewhat toward the middle line, holding the lips a little more firmly than for "m." The soft palate closes the entrance to the nose, the air is forced into the mouth against the inside of the

closed lips in this position, and the sound of "b" comes. But you couldn't say "big," if you didn't have this column of air pressing against your lips inside as you start your word. Don't let your lips struggle to get your sound. This sound is made even before the lips part. The lower lip moves down immediately to the position for short "i" in saying "big." See to it that your habits become such that air is kept moving from below outward ready to be used as

needed by the mouth.

Now for words beginning with "p." Your first moving is the same as for "m." Lips must come together. Then the muscles of the lower jaw pull the lower lip down quickly. The air pushes against the inside of your lips while they are touching. When the lower jaw moves downward, the air rushes out, making your "p" sound. This sound is just "air" —a puff. Do not make it as if it were "pu," like the first two sounds of "pug."
"P" is made like "t," and "k," only the holding-back is done with the lips this time, while the end of the tongue closes off air for "t," and the back of the tongue closes it for "k." They are all puffs of air, caused by the temporary shutting off of the current, which is being compressed back of the "closure." When the "barricade" is withdrawn, the "puff" is the result. The difference in sound comes from the different locations

for the "shutting off" of air.

For words beginning with "f" and "v." the first movement is to bring the lower jaw upward sufficiently for the lower lip muscles to move up against the rounded curve of the upper teeth. While the lower lip is held in this position, the current of air is forced between the lower lip and the upper teeth, making a sound like air escaping from the valve in your automobile tire. Hold the lip in the same position a little more firmly, starting sound vibrating, and you have the sound of "v." Here again the lip must never make more of an effort than I have described. In some cases the lip holds too long to its position, struggling to continue sound. It is another case of failure of the current to be there on time, leaving the lip in correct position, but without the air it needs. Of course, the sound does not come. We cannot drive a car without "gas," nor make a word without air.

In saying words starting with a "w" sound, bring the lower jaw downward a

little from a closed position, enough to permit the muscles of the lips to move toward the middle to the "oo" shape. The opening is an oblong. The current starts through the mouth in this shape. Next the lip muscles move back quickly towards the corners of the mouth completing the "w" sound. There is never any trouble getting this sound, if lip muscles begin moving immediately towards the middle, with the current of

air ready to be sent through.

The sound represented by "wh" as in beginning "when," starts the word by first blowing air, then by placing the mouth in an "oo" position and finishing as for "w." It is simplest to think of "when" as produced at the start like "hoo" (oo as in "moon"), then draw the lips back from the rounded shape of "oo" towards the corners, making the last part of "w" as you draw back, saying "wen." Do not separate it into parts. say "hwen," remembering that "w" starts its sound with an "oo." Do not linger on this shape. Go directly from "h" to "oo," "hoo," then by quickly drawing back lips, the consonant part of "w" is heard. Then pass on to "en," and you have "when."

The sound of "r" shapes the lips a little outward, forward, held firmly. The position of the end of the tongue is slightly tipped back in many mouths, leaving an opening between the end of the tongue and the roof of the mouth inside for the air to pass through. This position assumed, the mouth does not work further, but the air passes through in this shape. There is quite a variation in the way the "r" sound is made and spoken. Some trill it, some almost omit it. Some substitute a "w" sound. For the stutterer, the main help is to know that you do not work your mouth to say the "r" words beyond forming the position. The "pusher" does the rest.

The production of several vowels causes the lips to move to definite positions. Long "o" causes the lower jaw to move down a little farther than for the "w," the lip muscles bring the mouth to a rounded shape, like the letter "o." "Oo" as in "moon" causes the mouth to assume the position as for beginning "w," "ou" drops the jaw as for "a," in father," or as we say the word "ah," then the muscles move to bring the lips

in shape for "oo."
The "sh," "ch," "j," or soft "g," as

in "germ," need a movement of the lips, as well as tongue movements. They push the lips outward a little, more than for "w." The lip muscles hold firmly outward making a scoop appearance to the lips in some mouths. The jaw is in a closed position, the teeth closing as is the natural closing for the individual mouth. This brings the tongue close, flat against the roof of the mouth as it lies naturally in the mouth. The air is forced through the mouth in this position, and we get the beginning of "shut." Hold the tongue more tightly against the roof of the mouth, and push harder from below, and we get the beginning of 'iudge." Take the same position, move the lower jaw down fast, and the beginning of "choice" comes.

The sounds of "s," (or soft "c" as in "city,") and "z." The largest movement is that of the jaw in a straight line upward, as the lower teeth are brought up, so that molars meet. The front teeth may meet as they do naturally. This may be edge to edge in the "end-to-end" bite, or the lower teeth may pass up behind the upper ones as in the "normal bite," or the lower teeth may be outside of the upper ones, giving the appearance of the

"undershot" jaw. The last position is the hardest mouth in which to develop automatic habits to make an "s," or "z" sound. As the lower jaw moves upward, the tongue muscles cause a slight depression to be formed in the middle line of the tongue lengthwise. The sides of the tongue above the depression on either side fit closely against the roof and sides of the mouth above the teeth except at the tip of the tongue, shutting off the possible escape of the air on the two sides. This leaves a tiny "trough" through which the air is pushed along this middle line of the tongue through closed teeth. The hissing sound produced is caused by the forcing of air through a very small opening. Here again the stutterer's mouth may hold to its position vainly, not producing the sound, if the air-current is not in readiness for use. pushed from below. With these sounds, the lips draw back towards the corners, tending to make a "dimple" at each corner of the mouth. This is a firm way of co-ordinating and holding all the muscles concerned in an immovable position while the larger muscles below are forcing air through the small depression in the middle of the tongue. The sound of

"z" has the same position as for "s," but the sides of the tongue hold more firmly against the adjacent parts of the mouth. Vibrations are sent through these parts, adding sound to the hiss of the "s," making the heavier "z" sound. The same difference occurs as was shown between "f" and "v." The sounds of "f" and "s" are made by air being sent through the mouth in a certain definite shape. "V" and "z" are more than moving air. Vibrating air is moved through the parts concerned, and sound is added.

The letter "x" at the beginning of words is like the letter "z" in sound. At the end of the words it is the same as "ks." "X" does not, therefore, use any

new position of the mouth.

The sound of "th" in a word is produced by lifting the end of the tongue directly to the edge of the upper teeth. This movement is similar to the one used to produce "d," "t," "n," "l," but is directed to the edge of the upper teeth, instead of back of them. By practice, the end of the tongue learns to curve and fit itself against the rounded curve made by the edges of the upper teeth. The "pusher" blows air through between the tongue and the upper teeth, as held in this posi-

tion. The soft sound of "th" is produced by non-vibrating air pushed through a difficult opening, the difficulty coming because of the blocking of the pathway. This is the beginning sound of "think." Send vibrating air through and hold the tongue more firmly against the upper teeth and we get the first sound of "that." The second "th" as in "that" bears the same relation to the "th" in "think," that the "v" bears to "f," and the "z" to "s." The sounds "f," "s," and "th" (No. 1) are produced by non-vibrating air, while "v," "z," and "th" (No. 2) are produced by vibrating air, with the same muscles held in a tighter position to the parts adjacent. Do not forget that the sound of "th" has nothing whatever to do with that of "t," or that of "h." It would have helped to keep the thought clearer if another character had been used to stand for this entirely different sound. "Th" when "h" follows "t" stands for the sounds described above. The position producing this sound is different from the others, the resulting sound is different accordingly.

The sound of "h" is produced by the quick moving of the column of air from

below. The jaw moves downward, the throat opens, the tongue is down flat, out of the way, the pusher on its journey inward gives the necessary impetus to the air below, and the "h" sound is produced. The only trouble connected with making this sound comes from the failure of the machinery below to move the air-current in the way previously

described at just the right time.

To make the sound of "y," the mouth is placed first in shape to say "e," a depression lengthwise in the tongue comes first. The lips are drawn slightly toward the corners. The muscles of the lower jaw then pull the chin down quickly. making the sound beginning "yes." The vowel sounds, excepting long "o," "oo," as in "moon," and long "u" as in "use," do not move the muscles of the mouth very much. In this book I shall not describe the positions for each vowel sound. for there are so many, and a few general statements about the vowels will be sufficient to cover the need of the group for which this book is written. When trouble occurs in attempting a vowel sound, it is generally because the throat is tightened. so that air cannot pass through, or the air is not sent from below. The jaw muscles should lower the chin from a tight position of the teeth, so that the mouth is open, permitting the vibrating air to move evenly outward. It meets with no big obstructions in the mouth in making vowel sounds. In making "I," first make the sound of "a" as in "father." This sound is produced by dipping the back of the tongue, in a "v" shape. This is the beginning of "I." Then let the jaw move upward to a long "e" position, while you continue sound. Long "I" ends with a

final long "e" sound.

In chapters three and four, I have given you the normal movements and positions of the mouth, which you most need to know. It may seem to you as you read this that it is a tangle of details. But in the next chapter you will see how these detailed movements become co-ordinated to form sentences. Your task is to cause movements which are now uncertain, exaggerated, indefinite, to become definite, certain, and orderly. This is a mental task, by which you may learn to see clearly what the mouth does in normal speech, and then proceed to train your muscles in accordance with this knowledge.

CHAPTER V

THE RELATION OF THE "UNIT PATTERN" MOVEMENTS TO THE SENTENCE

In the two preceding chapters, I have tried to give you the movements and positions of the mouth which some of you need to know, in order to straighten out your own confused movements. You need to know as well how these single patterns are related to make speech, so as to see the united whole. To show you your whole speech machine working normally, sentence by sentence, then, is the work of this chapter.

The picture of the movements controlling the air in speech is in your mind. Enlarge the picture by seeing your body in long continued speech, constantly going through the same "unit patterns" of movements controlling the air, which produce one sentence or a part of a sentence. There is a brief period of silence in which air is moving downward into your

lungs. Then the "pushing process" begins, which furnishes the current for your words in speaking. Think of this process as repeated as many times as you speak a sentence in the course of a day.

As the column of air is moved up into the throat, you may see it as being pressed onward through the mouth, ready to be used in speech. Can you picture the single air atoms in the passage, pushed from below, ever moving on up, the top layers pushed into the mouth, used in making speech sounds, the next ones ever moving, feeding an air current to the mouth by way of the throat, and being pushed outward by the continued force, as they are given a way of escape through the mouth?

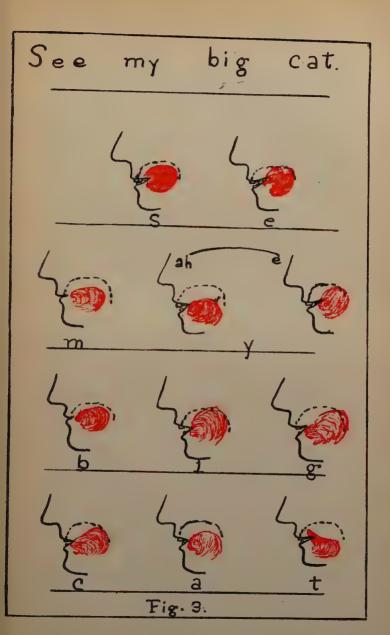
Now picture that at each time, just as you are ready to say your sentence, the moving inward of the front "bodywall" occurs simultaneously with the beginning of the first mouth movements required by the first sound of the first word of your sentence. Picture a mouth moving through this first "unit pattern." Then instantaneously this shape is relaxed. The slate is erased and clean. Then the most direct way is taken to go from this last shape to the next "posi-

tion." For instance, if I am analyzing the movements of the mouth in saying "man," I close my lips, as described in Chapter 4. I make my "m" sound. The next sound demands that the mouth be open. It also demands that the end of the tongue dip back of the lower front teeth for short "a." So after making the "m" sound, the muscles controlling the lower jaw pull it downward, the lips draw toward the corners, the end of the tongue "dips." The air moving on is passed over the tongue in this inclined position producing the vowel sound, and then the end of the tongue moves directly upward to the "n" position. The work of the mouth throughout a sentence is—first, "unit-pattern," second, a movement between "patterns" to put the mouth into shape for the next "pattern," third, the next pattern, etc., to the end of the sentence. Occasionally this movement between patterns is omitted when the mouth is already in position for the next pattern as in, "He came to see me vesterday." As the mouth ends "me," it is already in shape for the beginning of "yesterday." I will try to show by diagrams the line of movements through which a normal mouth passes as it says

a short sentence. Take the sentence, "See my big cat," for illustration. You have had the movements of the mouth necessary to produce each sound outlined to you in the last two chapters. Turn back to them if you will, and follow my diagram. At the instant in which the body 'wall' begins moving inward toward the back bone, the air may be forced through the mouth in the "s" position as given in Chapter IV. The mouth relaxes this shape. The jaw moves downward a little in order to bring the mouth into shape to make the "e" position. After the sound of "e" is made, all sound stops for the smallest fraction of a second. while the inward push is continued, ready for the next word. The body "pusher" below continues steadily, evenly, pushing to the end of the sentence. The lips close for the "m" sound, then the lower jaw moves downward to permit the beginning of "t," as described before (long "y" is made in the same way as long "i"), beginning to move upward again for the "e" shape, lips open, drawn a little toward the corners, showing the teeth. Sound stops again between words for so short an interval that it is hardly detected, the lips close for the

"b" sound. Then the jaw moves downward to permit the short "i" position, in which the end of the tongue moves down behind the lower teeth. The sound of short "i" is made. Then the muscles at the back of the tongue push upward and back, and the sound of "g" is heard. The sound stops again for the briefest interval. as between all words and syllables. the back muscles of the tongue push up for the hard "c" in "cat," the tip drops down behind the lower teeth for short "a," the end lifting to the "t" position, and then down to let the air escape, and the sentence is finished. This is the same line of movements which every mouth speaking the English language passes through, when saying "See my big cat!"

There is no stopping of sound during the changes within a word of one syllable, or in a single syllable of a longer word. The change of positions occurs so fast that the second position is ready for pulsating air to move on through the mouth in that shape by the time the first sound is completed, and the third position is ready, or almost ready, by the time the second sound is made, etc. I spoke to you in previous chapters on the work of the mouth about the different



possible locations in the mouth for movement to take place. This is of utmost interest in understanding how words may be spoken instead of separate sounds. The reason we can say man, and not m-a-n, the way the children sound out words in phonics, is that we generally use first one part of our mouth machinery to make one sound, then while that shape is used in the production of the first sound, the second shape is being started in another location of the mouth muscles for the next sound.

Perhaps this does not quite illustrate, but let us think of the car again. By having several pistons moving up and down, and working consecutively, a car is furnished constantly with power and runs more smoothly than a one-cylinder row boat motor. A "six" or an "eight" runs more smoothly than a "four." There is a shorter interval of time between the actions of the pistons.

To come back to speech—in saying "man," the lips are in a position for "m," and by the time they separate, another part of the mouth machinery has the shape for short "a" all ready—on

flows the air-current through this second shape immediately, causing no stoppage of sound. The change from short "a" to "n" illustrates another way of co-ordinating movements to keep up the flow of sound. One sound may follow another and help another to make a flow of speech, if the muscles next moving can get into position fast enough to permit the next sound to come immediately. Short "a" in man requires an end-tongue position behind the lower teeth. The position next required for "n" lifts the tongue end straight up to the "n" position. This is a simple movement, possible to occur fast enough not to break the flow of sound.

I told you that the work of your mouth in the production of a sentence is a quick passing from one position to another, with generally a movement in between. That picture was necessary for clearness first. Now to complete the picture of the sentence just as it actually occurs in fast speech! The mouth having these different locations for speech generally uses first one, then another, in coordinating so that the next position is ready by the time the first sound is made. The mouth does not wait for machinery to move into shape, relax, then move again. A smooth flowing language uses

a selection of sequence of mouth patterns which make possible this immediate change of sound. The stutterer often has the habit of holding to the first sound of a word as we have noted before through habitual checking of air from below. Some say that they cannot get the second sound. Now you may picture your mouth in correct action, letting the first shape come, then the next, as I have designated. Picture your mouth as saying "camp." The back muscles go up. But before they are well down, the end of the tongue "gets busy," fits down like an "inclined plane" behind the lower teeth for short "'a." Before the short "a" is finished, the muscles controlling the lips have become stimulated, ready to close the lips immediately upon ending the short "a" sound. Before the "m" sound is completed, the work of the next pattern is begun in getting ready for immediate pulling down of the jaw for "p."

And now, after thinking it all in detail again, I feel like exclaiming anew. "What a piece of work is man!" as another did of old. Such wonderful minute co-ordinations! Is it not a wonder that the majority acquire the complete co-

ordinations for speech correctly?

CHAPTER VI

ACQUIRING OF MUSCULAR HABITS

I am inserting these two chapters on the acquiring of speech habits, so that you may better understand the begingings of your speech. I want you to see your speech today as the result of a long building-process. This is true whether

speech is correct or not.

In the preceding chapters, you have gained a picture of a wonderful little machine, needing to work in an exact definite way in order to produce your speech. I have presented it to you as it works after speech is acquired in boyhood, or girlhood, and in adult speech. It is a picture of the accomplishment of definite muscular habits. It is a picture of skill in moving definite muscles into definite shapes, in a definite order. Speech moving freely in perfect co-ordination with thought, is a marvelous piece of achievement. It is comparable to the playing of the skilled pianist, the skilled

skater, the typist ready for finished work.

Longfellow says, "When a thing is well done, people see not the patient doing of it." We see the mouth "rattle along." The average person is not prepared to appreciate the wonder of it. The fact that Paderewski plays as he does today, does not mean that he started out that way. Step by step "the patient doing of it." So with speech. We are used to the finished product. Some of us are forgetting that we built by "patient" steps. We did not even know that we

were building. There are many things in the first acquirement of speech that are not very well understood. What speech is today depends on our beginnings—plus. It depends on how the muscular movements which control our speech

mechanism were started, and the habits built thereon. Finished speech then depends not only upon having a speech mechanism, but upon an habitual correct way of working it. Two things are necessary — the physical machine, the habit forming process; the first is useless without the other.

An automobile may be in perfect condition, ready to cover the highway, but the auto alone is not enough to take you

from New York to Boston. The right knowledge to run the car, applied correctly, will make its use possible. Sir Richard Paget's invention was worked by his hands. Our own individual machine which makes us talk is worked in a similar way by the use of muscles. Whether it works right or not, will depend on how the use of the muscles is acquired, and on the consequent habits built upon these acquirements. All of the working of the speech machine must be acquired. We are not endowed with that in the original equipment. Which muscles are used in speech, or how, or when they are used is not much understood. The mouth movements are so fast, so seemingly inseparable into understandable units, that speech mechanism is sometimes the thought of in the same way as the circulatory system, as if it came with us at birth and did not depend upon acquiring all of the movements afterward. The physical basis for speech does come with us at birth—the physical organs necessary and the muscles wherewith to work them, but the ability to work the machinery does not come until it is acquired. In the circulatory system, the organs come with birth, the working of the machinery

comes too. The heart beats. There is no "winding of the clock" in the circulatory system. But it is different with speech. The physical mechanism does come. The working of it as speech demands does not. Lacking the second necessity, this habit-forming process, the child may be speechless, and yet have the physical mechanism in perfect condition. Illness may and does at times interfere with, or stop, the habit-forming process in normal children. If speech once stops or fails to begin, it may stop permanently leaving a child speechless, or it may stop temporarily, pushing the period of speech-attaining into the future, beyond nature's best time for the acquisition of new muscular movements. In which case there may be trouble later on in trying to acquire the necessary movements and coordinations, and this will result in defective speech.

Let us suppose the case of a young man who has gained all other usual forms of muscular co-ordinations except those for swimming. He may be athletic, strong, perfect physically, and yet he may drown if thrown into deep water. He lacks the habit-forming process necessary to permit his muscles to move to-

gether according to the definite "pattern movements" which enable one to swim. He may drown for lack of skill in a certain definite process which can come only through the repetition and co-ordination

of swimming movements.

Like the one drowning for lack of acquired co-ordinations, the child may not talk, because he has not been able to acquire the necessary muscular habits and co-ordinations for speech. Not only illness, but too much isolation, or an upset emotional condition diverting the thought from speech, may prevent or interfere with the acquiring process necessary for the physical mechanism to function later on. The organs, then, come with birth, the using of them as speech demands, does not.

When the speech mechanism begins functioning, it borrows a part of its physical equipment and some movements of the body which are originally used for primary purposes. Speech is secondary among the processes. The "walls" of the body begin moving in and out at birth to supply the lungs with the oxygen of the air. Speech makes use of these basic movements to furnish an air-current for itself. Speech says, "Air

must be moved upward through the vocal cords to set them vibrating, then on through the mouth, which must change shapes during the outward passing of air in order to produce the changing sounds required in my production." Therefore speech makes use of the air bag (the lungs) and the expelling power of the larger muscles in the same way as it sends out used-up air for its purpose of "broadcasting thought." Speech-needs, however, demand more strength, more steady even coming-in of the "bodywall" than is needed to expel air. They demand force enough through the incoming body-movement to send the speech out with strength sufficient to be heard by those listening. If one is to become a public speaker, or a great singer, it is necessary to develop much strength in pushing out the air, thus furnishing the necessary force which sends the sounds outward to large audiences. This accomplishment becomes a "secondary" habit, built by development upon the "primary-need" habit of merely expelling impure air.

Speech also uses some of the movements of the jaw and mouth, begun for the primary purposes of maintaining

life, as a part of its movements necessary to produce speech. However, while we are picturing in our minds the parts of the speech mechanism functioning together, we see it more clearly if we put out of mind these other uses of some of the muscles. In addition to these "borrowed movements," speech introduces many other pattern movements of its own necessary in the production of individual sounds, all having their definite time and place of functioning as these sounds occur in words and sentences. Much repetition and practice in moving from one shape to another makes moving automatic in time. All the muscles of the body acquire their use after birth. Speech is no exception to this law, for the use of these muscles must also be acquired.

The arms and limbs come with birth, but if the baby and later the child should not use them for any reason, co-ordinating the movements, early getting arm movements and leg movements co-ordinated together, with the inner connecting done, and then keeping in practice by exercise, there would be no adult going through the many processes of every day life. There is not often cause enough for the larger muscles to cease their move-

ments. Illustrations of trouble of this kind are not as often seen. The need of exercise for the growing body is gener-

ally understood.

The way in which the muscles of speech are co-ordinated is not apparent to the untrained observer. Some of them belong to the vague realm of the inside of the body, the movements of the mouth are so fast that it is hard to recognize the definite unit movements and positions which are in need of repeated formation. It is easy to see how a finger or an arm works, the facts are not so hidden. The "trial and error" attempts at movements in the larger muscles come gradually closer to the controlled movements. the ones desired. All of the movements of the limbs are guided into habits by the sense of sight, hearing or touch, or some inside stimulus. If a child is being directed to learn a sequence of limb movements, his eyes see what the teacher does. He also sees whether or not his own limbs are carrying out the line of movements as The mother says, "Play presented. patty-cake." She claps her hands together. The baby watches, and guides his own hands, partly by the sense of sight.

Let us consider the attempts at speech movements in comparison with those of the larger muscles. The child cannot see what his speech muscles are doing in the way that he can see his hand approach a stick of candy. There is nothing to guide him with the sureness which guides the larger muscles. The fact that there are so many movements connected with speeech, adds to the difficulty of correct attainment. Each attempt by a "trial and error" method does not necessarily bring the child closer to the speech goal. The larger movements may safely be left to this basis of acquisition, while the smaller movements of speech may not, if we are to secure best results. The hand reaching for the stick of candy is not apt to be stopped on the way of its attainment long enough to have some random movement become repeated until a habit is formed which may prevent the reaching out and getting of an object. The mouth-movements may be begun either correctly or incorrectly. But the child has no sure way of judging of the results of these movements. He knows when his hand succeeds in getting the The muscles have attained the purpose of moving in that case. He cannot see his own mouth move. To speak a certain word in order to get something is the goal in speech. He usually gets what he wants whether he says the word right or wrong. The difference between some of the sounds as heard is very slight. No definite guide in moving like grasping the stick of candy. The infant is not ready for accuracy along any line. He may hear correctly, but having no habits to guide his movements, he makes an attempt, which may result in lips moving, when the end of the tongue should move, or the tongue moves when the lips should move, or the end of the tongue moves when the back of it should move. Moving in the wrong set of muscles brings the mouth into a shape which makes another sound than the desired one, for instance saying "det" for "get." These first patterns are apt to be repeated. The repetition of the same movements comes more easily than the finding of another way. An inner "path" is begun. Habit then gains its hold through repetition, and the infant is caught and pushed on in line with first patterns, getting farther and farther away from the goal with each repetition instead of closer and closer as happens with other movements.

It is not easy for the untrained adult to recognize in another person's mouth whether or not the movements making a certain word are correct. It is surely no easier for the infant to know whether he is getting it right or wrong in his own mouth. It is easy to see how a finger or an arm works. The facts are not so By careful study, these speech movements seem clear and definite, and may be directed by trainers with perfect sureness during the process of speech acquisition, so that there need be no settled incorrect habits in infancy of longer duration than a few weeks.

The infant's mouth often makes a part of the movements and positions for speech early, but some are generally omitted in the early speech of each child and do not have the repetition and practice which is essential for speech later on. When these are begun they do not find shape as readily as the ones which the young infant has been practicing from the beginning months. He lies in his crib, shaping his mouth in as many ways as he can, just as he moves his arms and legs and hands, and fingers — into as many positions as he can. It is nature's time to gain movements and form mus-

cular co-ordinations. As he shapes his mouth one way and blows air through, (which he has learned to do in crying) he gets one sound, another shape produces another sound, etc. He has a mouth muscle practice every day, many times a day. The important point here is that he is gaining the power, by repetition, to move his mouth muscles in a great variety of ways, just as his arms and legs are gaining by repetition the power to move more and more freely, developing strength to do so for longer and longer periods. Every normal infant mouth has within itself the possibility of gaining all of these movements, but every mouth does not gain them as it should.

It is an interesting fact that a child may become habituated to make all of the sounds fast but one, or two, or three. Being able to make the rest automatically does not mean that a new shape can find place rapidly. The new shape must have its period of repetition and co-ordination, and go through an acquirement process as the others did in the beginning. If the others are well acquired, the time of acquirement of the last need not be as long. The point here needing emphasis is, that repeated movements of the mouth

muscles in shapes not used for speech, or in shapes for a part of the sounds, do not bring the other definite shapes required for speech any closer to their acquirement in habit. The movements of the hands required for writing may be well mastered. This does not mean that such acquirement in writing makes it possible to play the piano. Whatever form of movement the muscles repeat, that exact form finds its place in habit. The vital thing is to have all movements and positions through which the mouth is to pass in perfect speech, find their opportunity for repetition early, so that all will have the necessary repetitions to make automatic action possible together at about the same time. If the position for "th." for instance, is not woven into the consecutive movements which make up sentences by the time a child is six years of age, it is not any nearer the goal because the mouth has the others in good use. It will not be any nearer until that especial shape has been found by the mouth, practiced, used in the places where it is supposed to come, until automatic action results. In fact, each day's habituated use of a line of definite movements in which one "unit" is constantly omitted entrenches the habit more firmly as already begun. I hear this often, "My boy is saying most of his words correctly, so I am not at all troubled about the rest." This is a big mistake. The muscles of the mouth are less and less likely to take on new shapes as the years pass.

The power to move the mouth into all the shapes of correct speech fast enough to talk sentences comes from the fact that the baby mouth has passed through all of these shapes many times in infancy, gaining by repetition the power to make shapes and to move rapidly from one shape to another. The ease of movement from one shape to another is not an inherent thing, but comes through previous slower gaining of individual shapes, until these can come fast in the order required in a given sentence of a given language. It is through this early correct acquisition of the first movements of speech, followed by constant repetition of these patterns, that children earliest gain the power to move their muscles most freely in the regular order required by the language being learned.

CHAPTER VII.

THE EFFECTS OF WRONG ACQUIRING

Thus far in this book, the normal speech mechanism has been pictured so that you may know the "standard," the "norm," the "pattern" to follow. In the last chapter we have gone over the acquiring process together. This habitforming process in the muscles is the way in which the mechanism becomes a usable part of our bodily equipment. I wanted you to see first the normal movements, and how speech is acquired under favorable conditions. Then it is easier to see the possible deviations from the perfect working of the mechanism. These are the deviations which cause trouble with speech.

Sir Richard Paget's speech device produces results as worked by the inventor, who knows the correct way to use it. The automobile runs when driven by one who has acquired correct driving habits. Habit is the "driver" who works the

speech mechanism, whether or not the working of it has been gained correctly in an individual case. If it has been gained correctly, the happy possessor of such habits does not know that he is held in the bonds of habit—for his habits all help him and work his speech mechanism. Although the wrong habits acquired are the undoing of many lives, the plan by which our muscles learn to work is an excellent one. Muscles are supposed to begin to function in infancy, and to get started early, gaining strength in boyhood and girlhood, ready to do the adult's bidding. They gain power slowly at first. Then sufficient repetitions of the right kind make automatic action pos-When this happens, the machinery runs itself. Watson says, *"We carry this world around with us as actual bodily organization, in the muscular and glandular organization of our throat. chest, etc. (including, of course, the sense organs in the muscles and the nervous system). That organization is ready to function day and night whenever the appropriate stimulus is given." The human possessor of this "organization" is meant to be ready to give his "conscious

^{*}John B. Watson-"Behaviorism."

thought" and activity to new things in his environment, to constructive things, and at the same time to be unconscious of the working of his machinery. This wonderful plan for our muscular development is carried out to a greater or less extent, according to the other conditions of our lives. Some of these conditions are capable of being controlled. Others are not.

As far as speech acquirement and coordinations are concerned, a much better beginning is possible than has as yet been put into practice. Instead of being left to a "trial and error" method of gaining speech movements, the infant's mouth may be helped to assume all of these necessary shapes early. This can be done, with the right preparation on the part of trainers, so that the young child is not forced or crowded, but finds only pleasure in the process. His interest in speechattaining as in all forms of activity is especially keen from infancy to three or four years of age. I earnestly hope for the sake of the boys and the girls of the future that the time may come when these years, rich in the possibility of gaining muscular co-ordinations, may be utilized to the best advantage for speech development in order to prevent difficul-

ties such as yours.

The time has come now in our thought to turn from the normal acquirement of speech to those conditions which make for difficulties such as yours. We found that the infant may attempt to say a certain word, and may move his lips when the tongue should move, or he may move the end of his tongue when the back muscles of his tongue should move instead, thus forming a "first-pattern" for future incorrect moving

for future incorrect moving.

Habit then enters in, and the mouth keeps on moving as begun, fixing incorrect word patterns. A sequence of movements is built up by habit, in which part are permanent and part are not, since part are incorrect. The larger part of the speech acquirement may be correct by the time the child is three years of age. "Trial and error" methods succeed in making many corrections. In most cases the child has overcome many early mistakes by that time. In some cases he is talking perfectly without special help by three years of age. But the large number who do not succeed in this early attainment by themselves are the ones for whom we are talking, and they are the majority. Let us consider the speech problem of one of these children, named John, who has succeeded in acquiring correctly all of the "unit-patterns" for speech, except the ones for hard "c," hard "g," and for "th." He says "tum" for "come," "do" for "go," "dis" for "this." He makes the pattern movements and positions for "t" and "d" as he begins to say words commencing with hard "c" and hard "g," and that of "d" for "th." The movement of the tongue-end up and down comes more easily to the average child than the movement of the tongue up at the back. He generally says "ma ma," "da da," before he says "ga ga." The sounds made with the back muscles of the tongue are among the last to be acquired and to be used correctly in speech. The sounds of "s" and "th" are also among the last. There is a good reason for this. These sounds require positions of the mouth for which the infant does not need at first to shape his mouth. The sounds made by using movements made by the end of the tongue, and lips, come first for the movements in this part of the mouth are developed in feeding. Look' back to Chapter IV to see the shape of the mouth for "th."

To return to the development of John's speech, each repetition of "tum" for "come" forms a stronger tendency to have the tongue-end continue functioning. By three or four years of age, John's flow of speech may be very rapid and 'Tum and do wid me' is his smooth. way of saying "Come and go with me." Now he can't say "tum" and "do" forever. He must say, "come" in adult English. He is constantly reminded by people around him to say "come," "go," etc. He tries, but much of the effort ends in his mouth's assuming the shapes which have been his responses in the past. Desire to talk as others do brings about effort toward correct speech, until the missing pattern is found. These new patterns, after being found, are desirable only from the standpoint that society demands these forms. They are otherwise anything but desirable in John's life at this time. Many repetitions are necessary before the new unit processes feel comfortable, and the new sequence of movements is gained. This process of correction is very confusing at the time, were there no future to consider. have to substitute a new movement here and there in place of what has been automatic movement, is an unfortunate thing to have happen. Suppose in your own case you have learned to play some musical instrument. You have become accustomed to using your fingers in a certain way. You find a new teacher. She tells you that you have learned your beginning work incorrectly. You must change your way of fingering. You know perhaps how difficult it is to change movements in such a case.

Morton Prince in his book, "The Unconscious," says, "The acquired dispositions repeat themselves—what is called habit. Precision in games of skill largely depends upon this principle. A tennis player must learn the 'stroke' in order to play the game well. This means that the muscles must be co-ordinated to a delicate adjustment, which, once learned, must be unconsciously remembered and used, without consciously adjusting the muscles each time the ball is hit. Indeed. some organic memories are so tenacious that a player once having learned the 'stroke' finds great difficulty even by effort of will in unlearning it and making his muscles play a different style of stroke. Likewise one who has learned to use his arms in sparring by one method finds difficulty in learning to spar by another method. In fact, almost any acquired movement is compounded of elementary movements, which by repetition were linked, and finely adjusted to produce the resultant movement, and finally conserved as an unconscious physiologi-

cal arrangement."

If the "stroke" in tennis is hard to "undo," surely it is no easy task for John to learn to substitute a different way of shaping his mouth whenever these sounds of "c," "g," and "th" come in his talk. But he struggles along and by and by he again talks with a flow of speeech, and says "Come and go with me." He may be five years of age by this time. And his speech condition will seem entirely satisfactory to the average intelligent person of whatever profession, for it is the only way of speech attainment of which he knows. If the child's life is moving on serenely, generally satisfactory, having average emotional stability and success, with no unusual frights or fearful happenings, he will not have any further trouble with speech. This means that the second "patterns" will function until they have gained sufficient strength in habit to function at all times and under usual conditions. However, this speech condition of John's may yet prove to be most decidedly unsatisfactory, even if he is talking perfectly now at five. Whatever habits are formed first in the muscles of a definite part of us, tend to urge their own continued action. They do not readily give place to a substitute movement.

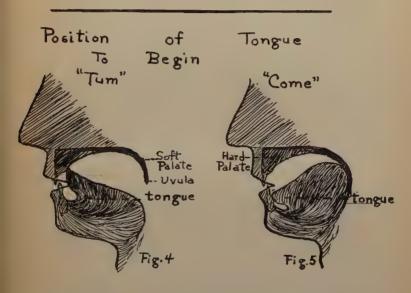
When the new substitute movement is begun, a conflict is started, which may be a first step in the process ending in stuttering. Stuttering is a muscular process organized by steps, just as correct speech is. The steps are built upon basic conflicts caused by two tendencies in speech muscles to act at variance, or at one time, or they are built upon other forms of "mechanical defect." The trouble once begun is fostered by fear—a sure guide to more confusion.

When you were an infant, you went through the same process as other infants pass through to attain speech. You were like John. You imitated, partly right, partly wrong. You thought you were saying "come," and you said "tum," at least some of you did. It is a common first way of saying it. The criticism is not on the sound of it. Look at Figures

4 and 5. These diagrams will help you to see what actually happens in the mouth which has learned two sets of movements for doing a thing where he should have learned but one. The important point here is that a word which should be begun with one set of movements located at the back of the tongue, is begun in another set at the end of the tongue. That pattern got into your brain, your inner nerve connections, your muscles. Then perhaps you said it that way for one, two, two and a half, or three years. The impression was getting deeper and deeper with constant repetition as time went by.

The first patterns become organized just as they are made. You cannot erase them immediately after acquiring them. The tendency to push the end of your tongue forward and up saying "tum" when you thought you were saying "come" stuck fast. Then you had to learn the grown-up "come." You had to substitute the movement and position for hard "c," for the "t" position which, you had learned in the beginning. The back of the tongue had to learn to push up and back at the same instant and place in the sentence where the end

WHY THE INFANT'S FIRST SPEECH SHOULD BE TRAINED



Primary cause of much STUTTERING

Conflicts in muscular tendencies are registered through "BABY-TALK"

of the tongue had functioned previously. It didn't feel good to be changing what you could do quickly before. Now you have to stop a little to find your "come" beginning. The first pattern, the one for beginning "tum," in you, does not want to stop acting. Part of habit is a strong urge to repeat itself. So a conflict is begun within your mouth muscles. Some of you hesitated a little every time you came to words which had these substituted movements at the beginning, and you began your stammering then and there. Others of you went on, after you had corrected your baby-speech, talking perfectly for a year or ten years, even. But whatever becomes well-organized first in habit in the speech movements sticks fast within us, and may re-appear to annoy our talk, to cause conflicts within us, or to make us feel "nervous," or it may appear so strongly, urging action, that it can even stop speech.

Under certain conditions of life, either or both of these records may prompt action at once, or may tend to. Then in the above case, if both appear at once where "come" has been substituted for "tum," the tongue tries to push in two opposite directions at once. Past habit

says "go forward," and tries to push the tongue that way. Later habit says, "go back," and tends to push it that way. So the tongue cannot push either way just then. The person is blocked in his speech, and cannot speak at all. conditions which can make possible this double attempt to begin a certain word are outward conditions which make the child afraid, or very uncomfortable, conditions which upset him, so that he does not know how to respond to his situations in life. In such states of feeling, the "nerves" are upset, the muscles are more or less unsteady, and "things happen" which do not occur when we are quiet, and in a comfortable atmosphere. tendencies of the past may arise. I have myself experienced with perfect clearness the standing out in consciousness of both ways in which my muscles had worked before. I felt like stuttering sometimes. I all but stuttered. But I had no past habit of stuttering in me to force me on. I also had my correct positions very clearly before my mind, through a long period of thinking and practice. So I was ready to choose quickly and direct the working out of my choice. But a similar thing happened to you once, and you did not know the meaning of it. You were too young to know what to do perhaps. You were not ready to help yourself. stopped. You naturally began to struggle, in mouth and breathing muscles, in your whole body in fact, to try to overcome the stoppage. It is very clear to me after having had my own experience, that without knowledge of what to do, a very serious thing happens, when a part of the first habit-system of speech acquirements is conflicting with the later acquirement. I have been much distressed over the general lack of understanding as to what actually happens to people having speech troubles. It is most essential that the nature of these basic difficulties be understood. Otherwise the help given does not adequately fit the trouble. More important still, the prevention of these troubles cannot come about until the cause of the difficulty is better understood.

Children ought not to have these tendencies to double action in their speech movements. You see speech should be started correctly, then there would be no force pushing one's muscles in the wrong direction. It is very plain to see how a tongue could not work at all in the con-

flict between the muscular tendencies in the beginnings of "tum" and "come" as acquired. But it is not quite so clear, perhaps, where the conflicting beginnings do not actually pull in opposite direc-"Wake" for "lake" is a common baby-substitution. The tendency becomes strong through saying "wake," to bring lip muscles rounded to the middle, when the child thinks he is saying "lake." This rounded shape is the beginning position for words commencing with "w." Instead of this, the correct beginning shape of "lake" is the end-tongue movement, and the end of the tongue should become habituated to leap quickly to position. You would know, I think, that even if the forces of habit do not pull in opposite directions here, a mouth cannot do two things at once, so again it stops, sometimes alternating from one position to the other. These basic conflicts, which are real experiences which mouths go through under these upset conditions, change somewhat, and usually become aggravated as the years go by. Some complex settled form of response to the words which caused basic conflicts become habitual. One capable young man, a pupil of ours, would always go through this

complex form of response on the approach of a "c" word. His tongue would always take the "t" position first, and then the last acquired "c" position, saying the word as "t-t-t-c-come." Three times on "t" position, then two attempts on "c" and a complex "come" was produced. This last response in movements to "c" words was made up partly of "t" movements, the first acquired in babyhood, when he said "tum"—the last, the acquirement of a later stage, when correcting his baby-talk. The lack of definiteness as to which muscles should move, and the conflict, cause the appearance of nervousness generally attributed to the stutterer.

Now as to the effects of the years on stuttering. The finished product is the completion of a muscular organization often begun in babyhood by making mistakes like "tum" for "come." A tendency in muscles to do two things, instead of one good strong tendency to do one right thing is built up. If upset too much, the child may not acquire the baby-corrections, which permit the second habits to become strong and permanent. The double possibilities in speech movements may begin his undoing, or

the two tendencies may cause a mixing of the two sets of movements. These may be augmented by struggle to continue speech, accentuated, by years of ineffective attempts to talk. Head movements sometimes join in—it is a useless effort of the body to help. The whole musculature is straining to overcome a difficult situation for you, and struggle and tension make for greater and greater loss of control of parts, which were once under control.

The possible "mechanical defects" of speech need attention and more general experimentation, until those in control can bring about a situation such that people do not need to be hampered as you have been. It is a terrible thing in a life to have its processes checked, stopped without knowing why, or how to overcome the difficulty. The future ought not to permit the possibility of such a condition. We must not let the future hold such misery for boys and girls, if anything we can do can prevent it. What more can we do?

The author of this book has another well on the way toward publication, entitled, "Perfect Speech at the Age of Three." This book is written as a guide

to parents to help them to give the right beginning in speech to their little ones. The right help in the beginning for all children could mean the elimination of so much of speech difficulty that we feel that this change toward helping the speech of infants must be brought about.

CHAPTER VIII.

WRONG ACQUIRING CONTINUED

In chapter two, we learned the normal way of controlling the air used by the speech mechanism. Just the right way of bringing the front "body wall" in-ward, furnishes a steady current of air to carry out sound, as well as to help make sounds for speech. Muscular habit is the force which keeps the "lung bellows" working. Otherwise we would have to stop and think each time we used our "bellows." That would be a big handicap to our best thinking about other things. But remember that the muscular habits which control our adult speech depend much on what the acquirements were, or on some strong stimulus later to our muscles, which was capable of making a marked impression. Thus far in this book we have discussed the wonderful co-ordination of muscles possible, which keeps blowing our "bellows" while we talk a line of talk of ten or

fifteen words at a time, and then permit the re-filling process in preparation for the next sentence.

But there are several possible ways in which this correct co-ordination of movements may be changed. Instead of the inward moving of the front body-wall in speech, the body can, and does at times, form other habits. Whatever it is possible for a human body to do in moving muscles is done continually in childhood, getting the full use of all the movements. But all of the movements possible to the muscles used to control the speech mechanism are not needed for speech. The ones which are needed must be co-ordinated in just a certain relationship. Much trouble is caused by the incorrect connecting up of the breathing movements with the mouth movements. The way which makes the machine "work." we call the "normal" way. But there are several possibilities besides the normal way. If the normal way were the only possible way of moving and co-ordinating muscles there would be no speech trouble. The body may push out at the "waist" as it should do in drawing in the air, but fail to start the return movement by the time the person attempts speech

with his mouth. I have found this deviation in a number of cases. With no return inner movement of the body, no air moves outward. Of course speech does not come. The person stands struggling. The harder he struggles to speak, the harder he may strain at his waist muscles, pushing them outward, until the reaction lets his body begin to come in,

when he can begin to talk.

The speaker may alternate the movements at the waist, moving out and then in, in quick succession, being able to talk, then not being able, according to whether air is moving up or down. Another possible disaster to the working of the perfect machine may be illustrated again by the "bulb." With the thumb and forefinger of one hand, press the neck of the tube, bringing the sides together near the top. With the other hand squeeze the bulb What is the result? The airpassage is blocked, so that no air passes out at the opening. Well, the body is capable of doing a similar thing. straining of muscles in the neck may entirely close the air passage, as the body below tries to push air upward, thereby preventing the necessary flow of the air through the mouth. You can see that

speech is again impossible. The person is "blocked." This closing of the throat usually comes about in the first place through fear or great upset to the emotions. You will remember that the law of habit is ever working in the muscles. If any stimulus or occasion starts a certain part moving, or tightening, or relaxing, that same thing tends to occur again. That is why it is unfortunate for anyone ever to have the beginnings of anything incorrect started in muscular movements to form a pattern for future tendencies to act. The muscles controlling the speech mechanism may be affected by emotion, because some emotions are felt in the same parts of the body in which the speech mechanism is located. So the workings of a perfect machine may be interfered with. Some of its correct movements may be stopped by a fear which grips, and then habit gets a first pattern. The stronger the stimulus, the deeper the impression of this pattern will be, and the stronger the impetus to act again. Some sudden unusual fear may cause a "clutching at the throat," a tightening, which once experienced may come again over lesser fears. If the person attempts speech under these condi-

tions, he finds it difficult, or impossible. Such a situation may start a first pattern, and through repetition, become connected up with the movements of the body in speech. A "lump" in the throat! 'load on the chest!" These expressions tell us something about what the people of the past have thought regarding the location of feelings of fear and unhappiness. Darwin says, describing effect of fear upon the body, "One of the best marked symptoms is the trembling of all the muscles of the body; and this is often first seen in the lips. From this cause, and from the dryness of the mouth, the voice becomes husky or indistinct or may altogether fail." fect of one big tightening of the throat through fear, makes it easier for lesser fears to do the same thing. Fear of situations, fear of meeting certain people, or talking under difficult situations, etc., tends to bring a repetition of the tensions of the first fear-occasion. Fear of an approaching word in speech which has given trouble before may cause the reappearance of the tightening started by the first big fear.

The individual is generally unconscious of the meaning of what is happen-

ing. He has no inner guardianship of his speech habits. He never has had. They became what they became in the first place — he was blind to the beginning process, and they remain inexplicable to him. He is at sea, struggling to talk, but not even knowing how to struggle efficaciously. When you feel the blocking of your speech, you may know that some part of your mechanism is working in the wrong way just at that moment. It may move right again by adjustment almost immediately, but it has not formed the habit of moving right definitely all of the time as it should have done.

I have worked with stutterers where the tendency to move in and out at the waist had become so strong in habit, that even after knowing the direction of the correct movement, it was impossible at first to continue through a sentence with one steady movement inward. The habit to move otherwise was too strong. I remember an interview with a certain young man, who stuttered badly. His deviation from the normal moving of muscles lay in a complete reversal of the use of the muscles working his "bellows." He talked always on the ingoing breath. I have known of several cases

in which a few words would be spoken on the intake of the air, but this young man blew all of his air outward with a hard blowing noise before he began his sentence. Then he began drawing air inward, speaking as the air went down. He labored hard over his talk as you can imagine. The listener had great difficulty in understanding much of it. Expel the air from your lungs and begin to talk a sentence as you inhale. Then you will see what this young man did in talking

whenever he attempted speech.

You will remember that in a previous chapter I told you of some general movements of the mouth, which should be made in a certain definite way. Now in our chapters on the deviations from the normal movements of the mouth, I want to speak of one common deviation from the normal straight-up-and-down movement of the lower jaw. You know you can move your lower jaw outward, and from side to side. You can shut your molars together to chew and you can under normal conditions doubtless shut your front teeth together to bite. The closing of the front teeth with the edges together was intended for the purpose of biting off food, while the molars were

intended to chew the bite. The natural closing of the front teeth on edge while the molars also close is called the "endto-end" bite. In the movement of the jaw up and down for speech, as said previously, the molars should come together, the same as the jaw closes for chewing. The reason for this is that the easiest movement possible, with the least need of adjustment, is the one which should be used in speech as it strains the mouth the least. The movement of the jaw up and down is a constant movement in talking, and should be done in this simple easy way. A good machine requires that the simplest, most direct movements possible be made. I will describe a possible deviation from this simplest movement. The bite which is called the "normal bite" brings the lower front teeth under and behind the upper ones. This is by far the best closing for speech. But even when the closing is made in this way, the child may have formed the habit of pushing his lower jaw outward a little, finding the meeting place for the edges of the front teeth to touch, and making the sounds requiring the closed teeth in that way. This requires a very fine adjustment and is therefore to that

extent a strain on the mechanism, whereas it is entirely unnecessary. In the "normal bite" closing of the teeth, the sound of "s," "sh," "ch," "j," "z," can be made best by closing the mouth straight up, without any need whatever of adjustment of the front teeth. movement straight up and down is made by large strong muscles, prepared for chewing, and is a good strong one in the constant use of the mouth in talking. The movements which adjust the edges of the front teeth together in the "normal bite" as when cutting off a thread, form one of the usable positions of the mouth, but it is not best that it should be used constantly in the rapid movements required by speech. It requires that the lower jaw in moving upward should be pushed outward and up, adjusting to the line of the upper front teeth. I have known several mouths in which the "s," for instance, was made perfectly by this adjustment for tight closing when the baby-teeth were used. When the permanent teeth arrived, they were longer, or shaped differently from the first teeth. The adjustment was not found again readily for fast speech. The lower teeth in one case would try and try, halting in

speech, trying to find the edges of the upper teeth. These permanent upper teeth had come in projecting outward, and long, and it was very difficult to have the edges of the teeth meet in a fast movement such as speech requires. We found the correct position and way of making these sounds by letting the lower teeth move up inside the upper ones, without any attempt at any adjustment of front edges and got the "s" sound perfectly, and found the correct way to make the words containing the sounds mentioned by this easy straight up-and-down movement, in which the lower jaw simply comes up in the easiest way possible in closing, letting front teeth go where they will. These sounds are not dependent at all upon the relative position of the front teeth together. They do need to have the jaw brought up so that the tongue may form itself into different close positions to the roof and upper sides of the mouth.

I was much interested in the case of a woman who came to us this past week. She had had a "stroke" a year and a half ago. She had recovered control of her bodily movements and her speech generally, but the words beginning with "s,"

"sh," "ch," and "j" were very bad. The lower jaw had not again found its position for these sounds. Her mouth closed naturally with lower front teeth behind the upper front ones—the best closing for speech. It took about a minute to show her how her mouth could make these sounds in the best way. She got them perfectly. Her lower jaw had fallen away from its close positions during her difficulty. As she began to practice different words in the correct way, her teeth would come together on edge as if that had been her former habit. She did not remember how she had made her "s" sound. Most people do not know how their mouths work to make any of their sounds. Of course she could direct her lower teeth back, in place, behind the upper ones. But a thing worthy of note in her case is this—she had evidently had one "mechanical defect" in speech. When the "stroke" came there was no strength in this movement. It did not come back. The mouth strain had been an added burden to an already tired set of "inner connections."

Sometimes the child's lower jaw moves sideways as he talks, giving a twisted appearance to the mouth. Not understand-

ing the movements of speech, and the possibilities of deviation, it has been taken for granted that this is the peculiarity of the individual. In every such case that I have known, the movement was a habit, built upon the chance movements of a little child or the need of adjusting to irregular teeth, etc. One case I knew, pushed her lower jaw outward as for the undershot jaw to make her "s" sound, although her closing was the "normal bite" closing. She made the upand-down movement at all times except when she came to her "s." I showed her how she could get her "s" sound without this awkward pushing out of her jaw. Needless to say, the girl was rejoiced that she did not need to make this unattractive appearance with her mouth at any time. These irregular ways, these awkward ways of moving or shaping the mouth for sounds, make quick easy moving of muscles difficult, and produce a "mechanical defect" in the otherwise smooth running of the machinery, causing hesitancy in speech.

If the tongue moves to one side for any reason, perhaps avoiding a sharp tooth, for example, instead of up and down in the middle of the mouth, there is discom-

fort and tiring. The machinery of the tongue lifts best straight up and down for fast, long-continued movement, as in constant speech. I think I have given you the main deviations from normal speech movements as I have observed them. The facial muscles around the mouth sometimes deviate from perfect symmetry in talking. These muscles can be helped to move symmetrically. There is a definite pattern way for the muscles of the face to work, co-ordinating with the speech muscles. A lack of proper co-ordination between facial muscles and speech muscles makes the person "conscious," and hinders freest, finest expression.

There is a definite working of muscles together, which produces correct speech. Defective speech is always caused by a deviation from this normal co-ordination of the muscles. Words begun incorrectly in the movement and position of the muscles of the mouth, thus producing another sound than the correct one in speech, and requiring a substitute movement or movements later, lay the foundation for conflicts in muscles which may result in stuttering. Any deviation from the best, or strongest way of moving the

muscles will produce a "mechanical defect" tending toward weakness or halting in the habits of speech. I hope earnestly that the day may come when these deviations from the normal may be better understood, thus bringing about an understanding of the need of training the muscular habits of speech early as they

are to function for life.

As I picture the long line of boys and girls, young men and women, who are struggling thus, and have struggled since time was young, the burden of their distress urges me ever on to work for the kind of early training that shall prevent this wholesale, unnecessary loss and pain and grief! Correct movements can be taught so easily, so satisfactorily, to a little child, saving him from the possibility of a life of unhappiness brought about by difficult speech. A little normal child can be taught to talk perfectly by two and a half or three years of age. Then every sentence spoken after those years strengthens correct muscular movements and co-ordinations already begun. There is then no period of correction after first acquisition, and no insidious "double tendencies" to act forming in him, from speech learned incorrectly, a potential source of trouble lurking dormant, tending to reappear under physical or emotional stress. If these first patterns for speech once come uppermost and attempt action, causing the person to become "blocked," they are very apt to come again under similar conditions. And then begins a life of struggle! Neverending struggle! Struggle daily, hourly, through the years! Readers, if words of mine could help to bring you some relief -some of you—what a privilege would be mine! How glad I would be that my muscles moved wrong "once upon a time," to set me looking and working and thinking! And if all who have suffered through difficult speech could do their part to help to keep the children of the future from the disheartening, destructive effects of it-wouldn't we all be glad!

CHAPTER IX.

THE EMOTIONS AS RELATED TO SPEECH DIFFICULTIES

Perhaps some among my younger readers may not know what is meant by the emotions, or what they can have to do with speech. I will try to tell you plainly, because a great deal is said these days about the emotions in connection with speech difficulties. The emotions make up the driving force within us. You think a thing out. Perhaps you should do a certain kind of thing. You know you ought to do it. Your best thinking has decided that. You may not want to do it. Therefore you may not do it, because the feeling in you is against doing it. Or, again, you may want to do the thing in question. Then your wanting to do it is a force which carries into action the thing which your mind decided should be done. The thinking-part of us, our "mind," is the most reliable, dependable guide that we have. We cannot safely follow our feelings. What

our feelings prompt us to do will depend largely on what they have done in the past. What they have done in the past has depended on our training and what kinds of habits are woven into us. We have found that in muscular training, whatever we repeated enough times became a habit. In the same way, whatever we feel strongly, or whatever we feel repeatedly in a given situation, becomes after awhile a habit in our feeling life, our emotional life, in response to similar situations.

The child should play much, laugh much, be free from the cares which belong to the grown-up people, in order that he may form the habit of light feeling, happy feeling, so that this kind of response may become habitual and easily called forth, as the years go by. The child who plays right when young, may respond to play again when grown. Play responses are woven into his inner paths, his inner habits. The child who never has played, who never has repeated the habit-forming process of joyful feelings, does not have such responses ready to be called forth in adult life. He is too serious. Much depends on the right development of the emotional life. The person with

a stable emotional background is better ready to solve the problems of life than the one who has developed "defects" of the emotions. When too much strain comes to the person who has not this kind of stability, he will have a "breakdown." He may get into a condition in which he is too much concerned about the events of life, so much so that he is upsetting to everyone around. He loses his sense of proportion in regard to little events. He is then said to have an "anxiety-state." Whenever the emotions begin to get control, the person is not in a satisfactory condition, either to himself. or his friends, or his family. The trained brain is capable of judging. The emotions are not. Now remember that whatever form of emotional response becomes the habit of one's early life, one is able to use most easily in adult life. If he is fortunate enough in childhood to have calm, quiet, controlled guidance, he will sense the control around him, and will tend to grow into strength emotionally. If on the other hand he sees constant lack of control on the part of those around him, he will develop the same kind of responses. He may form, for example, the habit to become angry if he is upset

continually, so that through his life-time it will be easy to yield to anger over situations in which that is not helpful or best.

Now there are other aspects of the emotional life which you need to understand. We have just said that you are the product of the environment in which you grew up. You responded to it in certain definite ways. These responses have become your life equipment, determining largely how you will respond to events of the future. That is, unless you can look into your life and see in what ways you are responding to the different kinds of things which arise, and decide whether you will continue to let past habits function automatically or whether by the aid of your conscious mind you can help to change the past.

If you and some other car driver have some difficulty on the road, is your first response to become angry? If so, it is not because that is the best form of response which you have thought out quickly, but because your past has not permitted you to form the habit of a different response, a ready smile perhaps, and a readiness for pleasant adjustment. A certain individual comes to my mind

as I write this. His emotional nature is completely under the control of his better judgment. He has the habit of friendly response to his fellow-man, even under the most trying circumstances. He smiles first always when trouble comes on the road, and in most cases makes the "other fellow" smile, and they come to an amicable settlement. The difference between the angry response and the friendly one, is the difference largely in the nature of the emotions which have found a place in

the response-habits of the past.

Then there are certain feelings which get connected up in individual lives with certain days, certain people, certain religions, political opinions, etc. We conclude we have a good reason for thinking or feeling as we do, when really we feel as we do because parents, teachers, neighbors, and people of our nationality feel as they do. We are just patterning our feelings, our emotional tones, after them. But we have emotions, too, which come from individual experiences, which are not determined by the "patterns" around us. For example, a certain child of my acquaintance started out to school his first day very happily. He was a lively little fellow, and normal in his emotional life, but he did not know just what to do that first day of school. He was too active and caused some confusion and the teacher shook him. She had been trained in the "old school" for primary teachers. After that for years the boy disliked school. It was hard to get him to go. He would not have resented punishment which was justified. But that first morning he was shaken "out of a clear sky," not understanding the reason. Today, a grown man, he remembers his early dislike for school, and connects it with the experience of this first morning, which stands out clearly in his mind even vet.

We may not like certain foods—carrots, beans, what not. We dislike them just because someone else disliked them, or expressed some feeling against them at some time in our hearing! People have been known to have an aversion for a certain color, a certain animal, a certain object, because of some unpleasant past experience. They may forget the experience causing the dislike, but keep the feeling against some object or condition connected with the unpleasant experience. To sum up then, we do not get angry today, necessarily, because the case

needs "righteous indignation." We do not necessarily dislike one group of people, and love another, because one group deserves either our love or our hate.

Today we are made up emotionally of definite possibilities to respond to certain types of events in a definite way. One kind will bring forth our joyful feeling somewhat as we have felt it before. Another may make us angry-in somewhat the same way as we have been angry before. We may become melancholy. We have felt that before. If we have had some unusual upsetting experience in life, we may have an unusual fear in us. as the result of it, which makes it easy to fear other events. Dorsey says, make ourselves as we go."* Each event. each day, does something to our habits. What we do with the events of the day, what we are able to do with them-make our lives. A right answer to the problem of today strengthens the emotional nature. Failure to solve our problem, failure to adjust ourselves to the situations of today, puts us in line for failure tomorrow. Success lifts the chest, lets the person walk erect, brings hope, confidence to the individual. The one who has suc-

^{*}George A. Dorsey in "Why We Behave Like Human Beings."

ceeded before, carries with him an attitude which expects success. He is more apt to attack a new problem in the right way. His confidence carries the confidence of others with him, and so it is said that

"Nothing succeeds like success."

But the first condition in life which makes for the best success is—a body on which we may depend. We should be able to count on our mechanisms. should not even know that we have any. We should have the physical mechanisms of life well in hand, tools of our minds. with our emotions of the strong, helpful sort which buoy up life and help to bear its loads. Especially, all the movements of the muscles of the body should early gain their permanent way of working, or there will be something disturbing left in the "inner workings" even if not showing outwardly. The right foundation for stability, poise, emotional strength, is to be found in this early weaving-in of the movements and co-ordinations of muscles. By so doing the individual is left free from consciousness of strain and conflict. He is free, as nature intended he should be, from the uncomfortable feeling which comes from conflicting tendencies to act. It is in this

condition that love for one's neighbor develops best. A freedom from self-feelings leaves the brain freer to think, and to grow. The finer things of the emotions may thrive then. Inner discomfort which comes from conflict in the muscles, lays a foundation, which makes for failure and the destructive things in the emotions. The human structure cannot "reach the skies" emotionally, if built on basic discomforts and conflicts. There is too much "pulling down" in such a life.

Most people having defective speech have emotional defects. There is good reason why this should be true. this upset emotional condition can and often does come as the result of the muscular strains connected with defective speech, and is not therefore, necessarily, the cause of it. Watson says, *"When kinaesthetic organization becomes blocked or is lacking, then the verbal processes function; if both are blocked, the emotional organization becomes dominant." As stated before, a beginning upset emotional condition may indirectly cause defective speech, by turning a child's attention from normal development, or

^{*}John B. Watson's "Behaviorism," Page 214.

cause an antagonistic attitude toward speech, which may delay speech development. An attitude of this sort may push the time of speech-acquisition beyond nature's best time for acquiring it. This condition is very apt to cause defective speech. However, I am now referring to the usual complex emotional condition which is the natural accompaniment of too much strain and conflict in the muscles struggling toward speech. "We make ourselves as we go." We are not today what we would have been under any other set of life conditions. You are not the same emotionally as you would have been had you not stuttered. It is not primarily your emotions that made you stutter. You doubtless had one or more "mechanical defects" grow into your speech through acquiring your speech movements wrong in the first place. Perhaps your speech machinery was stopped at some critical time and you did not know why. You grew fearful. No wonder! Your machine could not work as it was trying to work, any more than your car can work without gasoline. Your fears were well-grounded. What a person does not understand, but which stops his speech processes unheraldedleaves him "up in the air." No one is so sound emotionally but that "unreasonable" fears would result were his processes thus stopped. Then the fear acquired reacts upon the movements of muscles, making it more likely that they will move incorrectly again. And so the "vicious circle" moves on, ever on, until the stutterer's fears and upset feelings are a constant accompaniment of his thought of speech. But primarily, the mechanical defects started the speech wrong, then the emotional difficulty developed. make ourselves as we go." Is it consistent to view the product of many years of discomfort and inner struggle to overcome the effects of a machine that works wrong—is it in line with "making ourselves as we go," to view the product of these many years of strain, and say that since it is now emotionally wrong, therefore the emotions must have been the original cause of the difficulty? No! Not if "We make ourselves as we go!" John B. Watson in "Behaviorism" says, that "man's emotional life is built up bit by bit by the wear and tear of his environment upon him."* Each time the stutterer faces his listener, halting, strug-

^{*}Page 157.

gling, he "makes himself," adds one more layer to his sense of "inadequacy," one more layer to his feeling of inferiority. Why would this not be the final outcome of such a struggle? Each day's events make us. Failure piles up failure. So it is with success. Success is the thing which makes possible a "superiority complex." Success lifts the head and lightens the steps. Success makes herself as she goes, and her followers have the shining eyes, the erect heads, and the confident bearing.

Readers, who are not stutterers, failure to be yourself, failure to be master of your own powers through no fault of your own, makes for timidity, and emotional upset. This is the condition brought on by stuttering, year after year. Let us hasten the day when the mechanical basis of speech is gained as it should be. Then we shall not have the large amount of stuttering, nor the emotional difficulties due to conflicts in muscles of speech. And you who are in the midst of these difficulties, bearing them, facing daily discomfort, what is left for you to The thing you must do is to work steadily toward two things. First to overcome the habit of your muscles to

move, unknown to you in the past, into wrong shapes and ways, which block the working of a perfect machine. And second, to make yourself over emotionally, and get back to your own rightful feeling of adequacy to your situations in life. To start with a condition which makes for destructive feeling, but to correct it by constructive thinking and training—that is your task. May you gain daily in confidence, in poise, in achievement. May you again in a more satisfactory way 'make yourself as you go!"

CHAPTER X. OUR DAILY PRACTICE

The last two chapters of this book are especially for you who are daily trying to better your speech, in spite of the heavy handicap under which you labor. I am hoping that you can gain an understanding of the meaning of speech from this book. If you do, that understanding will be the basis of future growth. To make sounds, to sound out words, or to say sentences merely, without thought of training your muscles to follow out a definite permanent way of moving when making the sound or sentence, is useless. In all of your practice you must keep the picture of the definite correct movements which you are seeking to attain, clearly in mind. The important thing is to understand what correct speech is, how it is produced under normal conditions, how it is dependent upon the correct acquirement of habits in the muscles involved. how there are deviations possible from this correct moving of muscles which may also become habit, and which block, or

check, or annoy our speech.

It is advisable that a fifteen or twenty minute period be used each day in which you may be by yourself, where you can think at your best, and practice undis-Sit quietly, relax, then picture definitely the normal work of the speech mechanism. The vital thing in correcting speech is to picture clearly in the mind the correct working of the parts of the body used in speech followed by a constant effort to attain this correct way of working. I will suggest that you close your eyes, to shut out everything except the picture of the working of your machine, when used normally. Picture within yourself first the biggest movements those used to take in the air, and to send it outward to be used for speech. Say 'ha," sharply, quickly, sensing the muscles used in the front body-wall, as the sound is made. Then say a longer "ah" (sound of "a" as in father)—sensing the open throat, and the position used. This use of the waist muscles in saying "ha," moving steadily inward, is the correct use of the sending muscles, the power producing your sentence. The "ah" position permits an open throat through

which air may find its way outward. Next say "ha"—continuing the sound of "ah" as long as comfortable, sensing the harder movement inward on beginning the first sound, with a continued movement inward as "ah" is prolonged. Be conscious also of the open throat through which the air is carrying the sound outward. Now the power back of your machine is working normally as do all other speech mechanisms. Are you conscious that you are not sending steadily with the "ha" muscles as you speak a sentence? Then concentrate for a brief time on the correct way of using these "waist" muscles. Are you conscious of straining the throat muscles? Spend a few moments each day sensing clearly the open throat—the "ah" throat, relaxing all tensions. See clearly the correct way of doing what you individually are doing incorrectly. Picture yourself as growing into this correct use of your muscles as the months go by. Habit gets so strong a hold upon the use of the muscles that you cannot change to a new way immediately, no matter how determined you may be. It takes time and many repetitions to permit the correct way to function altogether.

If your mistakes are found in the use of your larger muscles, those used in furnishing the air, it may not be necessary for you to think about your mouth movements. If you feel that your mouth is indefinite, repeating movements, or unable to make certain sounds, you may study daily the movements and positions of the mouth for the individual sounds. You will be able in time to see clearly in your mind the line of muscular movements which should occur as the mouth speaks a given sentence. The sequence of mouth movements is not the same for any two sentences. The way of blowing out the air, the action of the "bellows" is the same for every sentence. The moving and work of the mouth for a given sound is always the same, no matter what the sequence of sounds may be.

In picturing the production of a sentence then, picture the exact movements required for the sentence you have in mind. Some of the muscles controlling the speech mechanism of the person who stutters have lost their "sense" of where and how to move, as I have said before, through the unfortunate acquirement of a wrong way of moving. This was followed in many cases by a right way of

moving in correction making double tendencies to move for the beginning of a given word, or words.

What are you to do, then? Teach yourself again the correct location for the unit movements, the definite movements for each sound as given in preceding chapters, also the way in which the muscles move the mouth from one shape to another in order to produce sentences. Day by day it will grow within your muscles to find their definite correct way of moving again, permitting you to bring order out of chaos and confusion.

Watson, in "Behaviorism," says in his chapter on "Manual Habits" in regard to the "Final Stages of the Formation of Many Habits." "After a habit has been set up by reacting to visual, auditory, tactual and other stimuli, such as we have described above, an additional factor enters in. As we exercise the habit continually, the actual visual, auditory, olfactory and tactual stimuli become of less and less importance. When habits are thoroughly ingrained, we can execute many of them blindfolded and with our ears and noses plugged up and our skin covered with cloth. In other words. visual, auditory, olfactory and tactual

stimuli no longer have to be placed at turning points. What has happened? A second stage of conditioning has taken In the early stages of the learning process, each time the visual stimulus is given us we make a muscular response (with our striped muscles) to that visual stimulus. In a very short time the muscular response itself can serve as a stimulus to set off the next motor response in order, and then the next motor response can set off the succeeding motor response. so that thereafter complicated mazes can be run, complicated acts of various kinds can be accomplished without the presence of visual, auditory, olfactory and tactual The muscular stimuli comina from the movements of the muscles themselves are all we need to keep our manual responses occurring in proper sequence."

As I see it from my experience, this sense in the muscles to follow out a sequence of movements, directs the movements again just as previously performed. If two conflicting tendencies to move have gotten into a set of muscles, by following out one way first until it becomes habit, and then substituting another, the muscles may not again clearly follow out either one. If the substitutions

are allowed to go through the habitforming process of repetition undisturbed, they will keep gaining strength by further repetitions, and the old habit will in time cease to try to function. But if the second is not acquired without too much conflict, and if conflict is once begun between the old and the new, the conflicting movements themselves become subject to the grip of habit, and the muscle-sense cannot direct a line of normal movements as they ought to be carried out, because the normal line of movements has not been learned and it must direct again as gained, and repeated previously. muscles normally gain their sense to move in a certain definite way later by gaining the line of movements which are to be carried out correctly in the first place. This is the way in which muscles acquire clearly their "sense" of where and how to move next in a sequence. In learning the old folk games there is a definite set of movements to be learned. These are gained carefully by the aid of sight, or hearing, practiced slowly, then as faster repetition becomes possible, the eyes and hearing are not needed, and the muscles have learned to do the moving alone.

The mouth muscles of people who in acquiring speech learned to say "tum" for "come," "tee." for "see." "dis" for "this." etc., and which did not learn the corrected forms in an undisturbed way. or which because of serious fright or confusion started up again the first movements, are all mixed up. As speech begins, there is with them no easily moving sequence of movements. movements of "tum" and "come" stop and fight at the beginning of hard "c" words. Perhaps there are a half dozen of these conflicts possible, when words occur beginning with sounds which had early been made in two different ways. Then by degrees the fear of conflict over part of the beginnings may be transferred to other beginnings, until perhaps no beginning seems secure and sure in the person's speech. If such is the case, or if you are conscious that only certain sounds give you trouble, study carefully, picture clearly the correct movements. Do not think of this work as a study of sounds, or phonics. Think how you are to move muscles, think what is the very start of the correct moving as you start words beginning with different sounds. Locate in your mouth the exact correct moving

for each sound. Then move air through your mouth, picturing carefully the changing from one mouth shape to another, and the sequence of movements as you say a sentence. Direct your mouth to disuse the conflicting movements. Understanding why you say "t-t-t,c" for instance, making perhaps another beginning, an incorrect one, before the desired one, or why you make any of the mistakes you make, helps to undo the past. In a nut-shell, seeing clearly your line of muscular movements for one sentence at a time, picturing clearly a column of air moved through the mouth at the same time, will give you the model which is to become habit, through repetition. Daily repetition of sentences by yourself, not for the sake of hearing yourself talk perfectly, but to follow out clearly a definite line of movements, will train aright the muscle-sense to follow again a definite sequence. Suppose a class in gymnastics is to learn a drill, in which one movement follows another. The class will be directed first, "Left arm, right arm," or "Up, down," or "Two steps to right," etc. Then the time will come when the sequence is learned, and the class can go through a long drill without direction. In your re-training of a definite line of movements you have the force of habit to contend against. The force of incorrect habit pushes or pulls in a set of muscles in a most annoying way. But keep directing, and the time will come when your muscles will respond to the simplicity and ease of this perfect

moving.

Each time you have your "quiet time" for speech by yourself, work for perfect relaxation first. There is a tension in the muscles of the person who has strained himself too hard in talking. As I have watched this process of re-training worked out in this way, growth has come first through the clear understanding of the mechanical processes of speech. Next, through this clear mental picture, a directing of the movements controlling the speech mechanism is possible whereever the muscles have formed the habit of deviating from the normal. Perfect speech is brought about by the correct movement of muscles working a physical mechanism. The mind should be the guide in re-training. It is capable of standing aside, as it were, viewing the physical mechanism, as a mechanic views the car when out of order. "I am doing thus and so' incorrectly. Here are my deviations from the normal. Then here is my course of training. When I fail, old habit is causing me to do what I did automatically in the past. I must pay no attention to the failure. What is the normal condition?" Think that again, to yourself, tell it into your body to the parts concerned. Practice your sentence with the consciousness of the normal movements in mind; then drop the thought of speech training, thinking to yourself that you have added one more layer of new habit—you are that much nearer perfect speech.

Your old emotions will come to consciousness to bother you. Your mind stands off again, and talks to them too, "These feelings come from the past, a part of past habit. I do not need to be fearful now. The fear came when I did not understand, or know what to do with my speech. I can train myself into knowing that it is not necessary to pay attention to my upset feelings. Everything is going to feel all right within me in time. I do not need to pay attention to feelings which are simply a part of past habit. They are not caused by any present condition. I am creating a new

set of feelings." By the time you have ignored your old emotions steadily, for several years, substituting new patterns, you will have wrought your own emotional cure. To "ignore" them means that you will not act upon their urging. You will act as if feeling as you should be feeling. The person who succeeds in working over his own mixed up condition accomplishes a big task. The persons with speech trouble are not the only class of people in need of this accomplishment. However, the people who have been strained too much through speech troubles cannot have the undisturbed basic conditions emotionally which would otherwise have been theirs, other conditions being the same. But the emotions of all human beings need directing, controlling. If the young are started right, the helpful side of the emotional nature will have been functioning during childhood. The older guides will have in mind a training which will enable the child to direct his own powers as far as possible, ready to be self-directing as adulthood approaches.

The late years in the development of the study of human beings have brought to us the knowledge that it is our emo-

tions which cause much trouble which was formerly thought to be mental. If the emotions rule untrained, the human being is not safe; that is, unless the finer. stronger side of this nature of ours has become fixed in habit through years of repetition, with the undesirable unused. All of humanity needs this training. But to you who have an added strain to combat, think carefully, not broodingly, into your life. Correct the errors. Face the facts. Be honest with yourself. Don't be afraid to see your own mistakes as others see them, as well as to see them from the standpoint of your own experience. It is generally hard to admit to one's own self that there has been failure. The tendency in human nature is to cover up our weaker side. Human beings substitute a variety of habits in life which keep them from seeing themselves as they are. These habits tend to keep the individual "comfortable" for the time being. But they do not make for progress nor permanent comfort. The closer we come to seeing the facts of our own lives, the more able we shall be to discard the useless, and then to develop and grow. It will not trouble us permanently to "face the facts." And the

first step in seeing into our own lives is to know that we cannot see them clearly at first. The stutterer often blames conditions and other people for his own failures. I can see how hard it is in many lives not to have the right understanding on the part of others regarding the enormous handicap of a speech difficulty. On the other hand, blaming others is not of any value in the working out of the problem. Constructive thinking is what counts. Putting into life each day correct muscular habits for speech, following our normal "pattern," optimistically living each day in the confidence that growth must follow intelligent effort, trying ever to see your own lives and their conditions, past and present, fairly, truly, will lead you nearer and nearer the goal of better speech and happier conditions.

The kind of re-training that I am suggesting leads you to repeat normal, correct movements daily, thereby gaining the habit of normal speaking. I hope you will not brood over your failures. Think very little of the incorrect things except as you think constructively. I hope earnestly that you will gain a clear picture of the meaning of speech, from

the standpoint of what the muscles are supposed to do. Relax constantly the tensions within you. Let the normal movements grow back into your habits, by degrees as the days go by. You can do very much for yourself, my friend, wherever you may be if you will go at it in earnest.

Remember too that there is a niche for each of us to fill if we will but find it. If you cannot talk well as yet, you can serve in some capacity, which will bring you satisfaction as you attempt to work out your problem. That this book may be of some service to you in solving that problem, and in growing daily in your overcoming is the earnest wish of the one who writes it.

CHAPTER XI.

A PERSONAL MESSAGE

In this closing chapter, I am writing to you personally who are handicapped by stuttering. I have ever reached out to you in heart and mind, knowing that you are struggling under a heavy burden, a much heavier burden than anyone can know, who has not felt the continual strain of forcing himself inside to his utmost limit. And, in most of your cases, it is such an unsatisfactory effort. With the majority of you, it is a blind effort, a struggle at each necessity for speech, without bringing the accomplishment of a purpose. You get nowhere in it, unless you have learned to struggle in a definite way towards the definite correct standard, which finally brings some relief.

Were I to commiserate you only, there would be no value to you in such a course. Were I to dwell fully on the misery through which you all pass, it would help neither you, nor your cause.

It is better to work constructively toward the elimination of your kind of difficulty, and the bettering of your present condition, as far as that is possible. But I feel that you need to realize that there are others who are trying to get under your

burden to help lift it.

Young people, we know that some of you have looked for work, and have looked in vain, because you stutter, and the work called for speech. You took a position which you did not want, because you must earn your way. You were ready for promotion in the army, your straight, manly bearing, and general strength picked you for an officer, but when called forth, and given a trial, you couldn't issue a command!* Failure! And what disheartening effects failures of this kind have on you, for they come, piled high, upon the already too big a load! You are brave to go on as you do, so many of you! You are greater heroes than some are whose names are written in the annals of men.

After failing to find work, some of you have become discouraged. You have done things you never thought you would do. You did not intend to do

A real experience of one of my '(pupils."

them. We know some such. My heart aches as I remember an evening spent with one young man in the early twenties. He had "gotten in bad," he said, and his big frame shook with sobs. He wanted to make good in life. He had intended to. But he went to war. His stuttering became worse. He couldn't find work when he returned. He was hungry. He had to pay for his room. He didn't know what to do. So he went to places where he had never thought he would go. He wished he might do differently, but how could he when he couldn't as he said even ask a man for work without "making a fool of him-self." The pity of it! We tried to get him to begin again. "It was too late." he said. Yes, it was too late for that life to become what it might have been! As he left, I said to myself with an aching heart, "It could have been prevented! could have been prevented." When, for the sake of such as he. will more be done to prevent the possibility of such human disaster? We offered to give him lessons until he could find work, and get on his We made an appointment for him to come back the next day, but he did not appear. The newspaper of the following week had the names of several "holdup-men" who had been caught. One name was the same as that of our friend, and the paper said that he was a stutterer.

Help had indeed come too late!

I have another young man in mind who came to us several years ago. might have been of much value to the world, but his stuttering was very bad, and with a high sense of honor he had broken his engagement to the girl he loved. He thought it would be unfair to her if she had to listen to him always in that condition. But the decision was the death-blow to his life-hopes. He went to the lumber camps, lived for years away from all he knew, tried to forget himself, and then finally drifted back to the city, and came to us. Poor young man! He needn't have been in this chaotic condition. He didn't want to be. any more than do the rest of humanity. but his inner task was too great. His effort seemed unavailing. Had his talking machinery begun right, he could have held up his head among his fellows. He could have married the little woman he loved. His life in the usual course of events would have grown in efficiency, for he had all the other qualifications

necessary for success. I am talking to you who know through your own experiences somewhat the causes of these failures. With your own speech trouble, you know that you might have met with failure had favorable circumstances not intervened to keep you from it. right help made some of you successful in life. We are very glad! Some of you have already found the way to stop stuttering. All of us are glad of that! Your experience has fitted you to understand the problems which may come to a life, so filled with internal struggle. Perhaps you can be the "big brother" to some one discouraged by this big problem.

The best time in life to work on speech is not after the muscles have formed their incorrect habits. Prevention is very much better. You have had an experience which leads you to know and understand some of the difficulties through which a million or more of our people are passing. Shall future generations be permitted to pass through experiences such as yours has been? We consider that the best which can be done to help the stutterer is after all inadequate to the need. No one can wave the "magic wand" and undo the past. No one can make you

again what you might have been. I wish I could truthfully say otherwise. I will illustrate what I call "adequate help." Suppose that I cannot see well. I have not enjoyed reading as formerly. I finally am forced to go to the oculist. He fits me with glasses. I go home and read and read. All trouble gone! That was my own experience. I was grateful for the oculist! That is what I call "adequate help." Help that permits you to forget the past! That permits you to "take up your bed and walk"—and be as if you had not been sick.

But the very nature of speech trouble does not permit of such grateful cures. The beginnings of most of it had their roots in infancy. The difficulty has grown to be a part of yourselves. It is not "adequate help" to have the doctor give you the kind of cure which must be doled out by degrees, bringing slow relief through the years! This is why the whole condition demands the forward look. I picture Sargeant's "Prophets" straining forward, looking toward the sunrise. Looking for the light! May the light come which will let the people of the future live, unhandicapped, free to express, free to work, free to succeed!

Free to give the best that earth affords a human life, free, yet controlled, fully developed, giving itself to causes worth while!

But if an "adequate" cure is lacking in the nature of things, to grow better as the days pass is next best. We must "carry on!" We must not "drift." We must do constructive building. That is what counts. In spite of my seeming discouragement, many of you will be better two or three years from now than you are at present. By faithful daily training, such as I have advised in these pages, you can grow better! Some of you will not be stuttering three or four years from now. One young man wrote me from Ann Arbor University, "I seldom think of my one-time difficulty of speech." That is what you will say some day, some of you. Some of you will get largely over your troubles, enough to be comfortable generally in your speech.

Some of you have had these troubles for so long that you will not be able to overcome them. If the work you do on speech training helps in the conscious control of your mechanism, it is better than to continue as you are. Thinking clearly, and sticking as closely as you can

to the correct way, lightens the load somewhat. That is all some of you can do. For the limit comes to adults beyond which we may not achieve in attempting the co-ordination of muscular movements. We are not working in harmony with Nature's plan for human beings when we let our children's muscles form incorrect habits, leaving the adult to undo the work. The reversing of the process, namely to work during the first three years of childhood, when nature permits and urges, leaving the life thereafter free from speech problems, is the saner and more effective course.

Let me tell you something that will lessen your own heavy feeling considerably. When you feel the burden of speech too much for you, change this emotion within you to action intended for the relieving of some one else who has a similar difficulty, or to constructive work on this problem. Say to yourself, "If I have had to go through this difficulty in my own life, at least I will do what I can to make it possible for the young to grow up without such handicap. I will use my difficulty in some way so that the experience may not be a total loss." Sometimes I have wished that

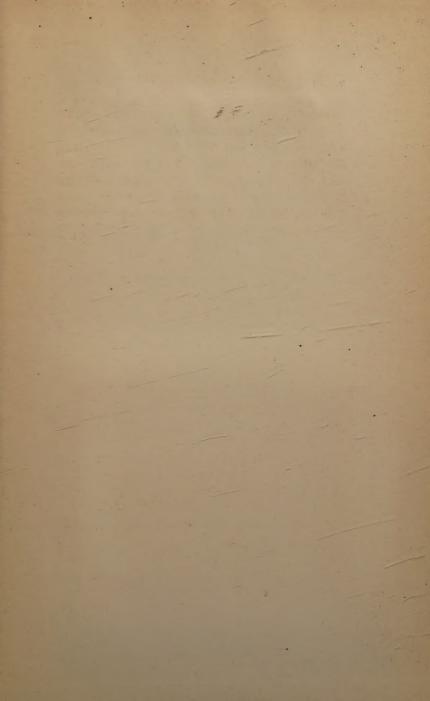
an organization could be formed of all the defective speech people of the country, together with those who have felt the trouble, having overcome it. Would not such an organization be a fruitful source of help to those whose members find life too hard, a source of strength to those struggling to overcome, to feel that many others, trying to be brave in spirit, are all with them in their effort to "carry on?" I think it might be possible for the grown-up people, the intelligent people who stutter or have stuttered, who have felt a need in their own lives-to rise up and say that it shall not be so for our boys and girls of the morrow, for the little ones who are yet to come into the world.

In every community there should be speech-advisers, who have been trained in the guidance of the muscular movements of speech, so that they may be called in frequently by mothers to guide the developing speech of the young child from the age of eight months until the time when speech is perfect. Under correct guidance this perfecting of speech need not be later than two and a half years of age with a normal child. If a plan of this kind could be carried out,

and children be thus helped, the problem of adult speech trouble would be largely eliminated. The time is far distant for the elimination of all of it. In fact, the day will probably not come for the complete elimination of it, but it could be minimized by early help, permitting the speech mechanism to become perfected, ready for thought to flow out untrammeled as the mind grows. The work done on speech before the age of two and a half years is forgotten by the child. The speech-machinery is ready for automatic action, no change is necessary from then "A consummation devoutly to be You who have suffered from speech trouble, join with me in hastening the day when the young child shall begin right, and fewer be forced, through no fault of their own, to spend their lives less efficiently and comfortably than they might have done.

Remember you are going to start a course of self-training, doing a little each day. You are never going to stop until your speech machinery runs smoothly, automatically, no matter how long that takes! You may know that many, many others are doing the same way. When you feel alone, because you cannot con-

verse freely, know you are not alone. You have others back of you and with you. Now I bid my book God-speed in its journey to you! That you may realize in yourselves the purpose of this book in the regaining of your own mastery, is the earnest, heart-felt wish of the author.



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